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AN ATLAS
OF
HUMAN ANATOMY
FOR STUDENTS AND PHYSICIANS

BY
CARL TOLDT, M.D.

ASSISTED BY
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Adapted to English and American and International Terminology

BY
M. EDEN PAUL, M.D. BRUX., M.R.C.S., L.R.C.P.

FIFTH SECTION
F. ANGEIOLOGY
(FIGURES 933 TO 1123 AND INDEX)
REVISED EDITION



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ANGEIOLOGY—GENERAL CONSIDERATIONS

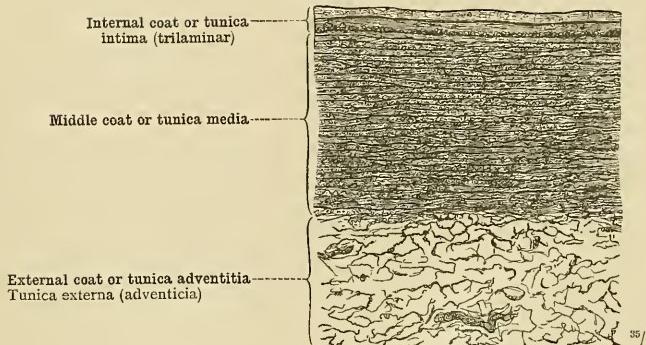


FIG. 933.—PART OF A TRANSVERSE SECTION THROUGH THE WALL OF THE DESCENDING THORACIC AORTA (HUMAN); INTERNAL, MIDDLE AND EXTERNAL COATS; TUNICA INTIMA, MEDIA, ET EXTERNA.

In the external coat sections of two vasa vasorum are seen.

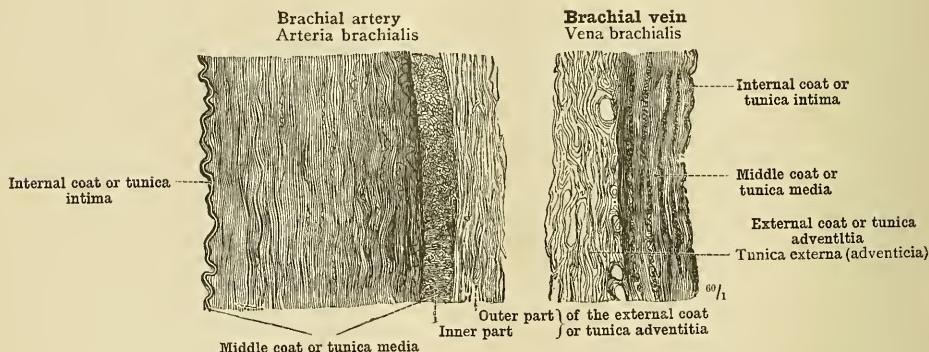


FIG. 934.—PART OF A TRANSVERSE SECTION THROUGH THE CUBITAL PORTION OF THE BRACHIAL ARTERY AND VEIN (HUMAN).

The Layers of the Walls of the Bloodvessels.

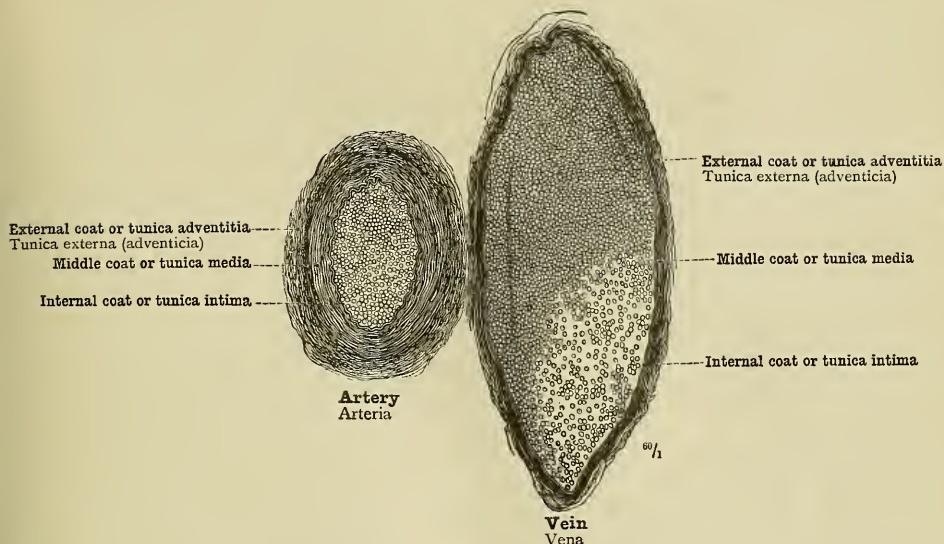


FIG. 935.—TRANSVERSE SECTION THROUGH AN ARTERY OF THE MESENTERY AND ITS ACCOMPANYING VEIN (HUMAN).

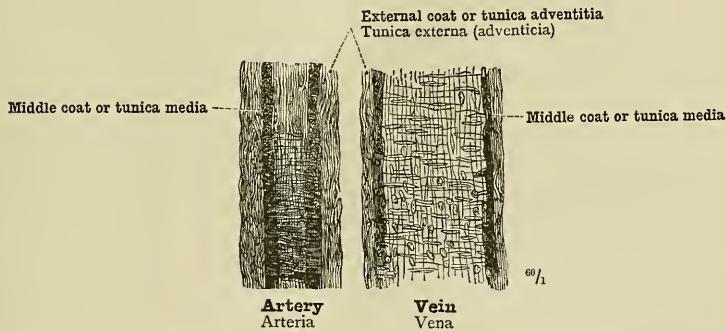


FIG. 936.—LONGITUDINAL SECTION OF A SMALL ARTERY AND VEIN OF THE PANCREAS.

The Layers of the Walls of the Bloodvessels.

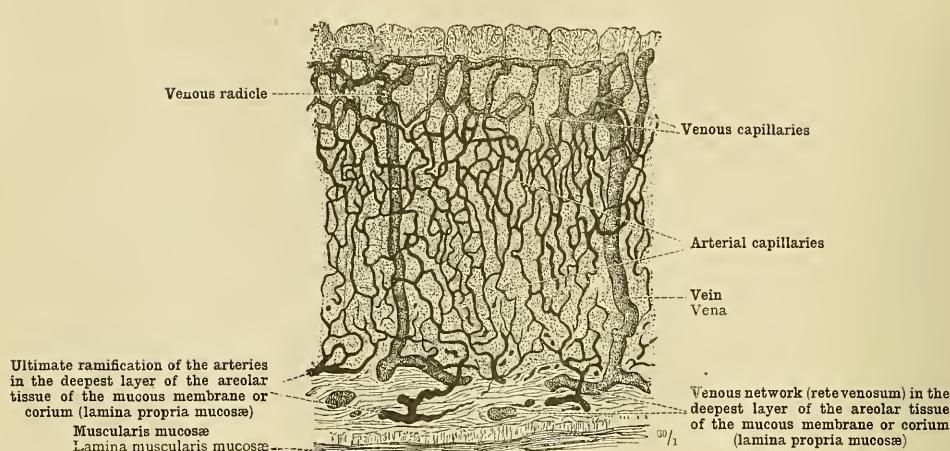


FIG. 937.—BLOODVESSELS OF THE GASTRIC MUCOUS MEMBRANE IN VERTICAL SECTION: VASA CAPILLARIA, CAPILLARY VESSELS, AND THEIR CONNEXION WITH THE ARTERIES AND THE VEINS.

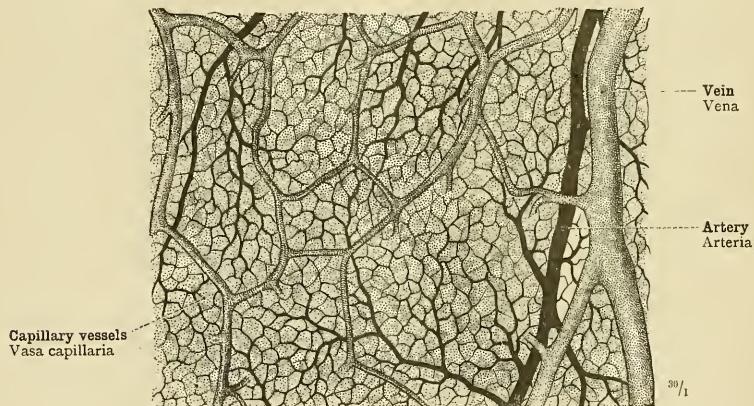


FIG. 938.—THE VENOUS NETWORK, RETE VENOSUM, AND THE ULTIMATE RAMIFICATION OF THE ARTERIES IN THE DEEPEST LAYER OF THE CORIUM (LAMINA PROPRIA MUCOSAE) OF THE GASTRIC MUCOUS MEMBRANE.

The plane of the vascular network is parallel with the surface of the mucous membrane.

The Capillary and Subcapillary Vascular Ramification.

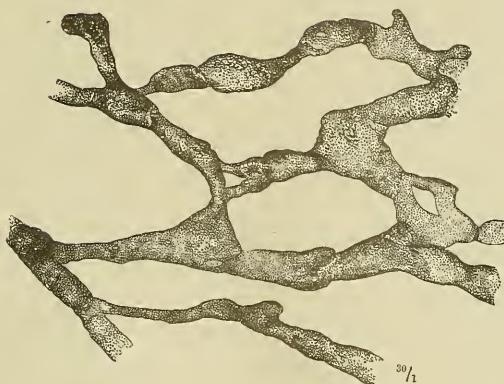


FIG. 939.—VALVED SUBCAPILLARY LYMPHATIC VESSELS (VASA LYMPHATICA) FROM THE SUBMUCOUS LYMPHATIC PLEXUS OF THE HUMAN OCULAR CONJUNCTIVA (CONJUNCTIVA BULBI), INJECTED WITH TRANSPARENT GELATIN.

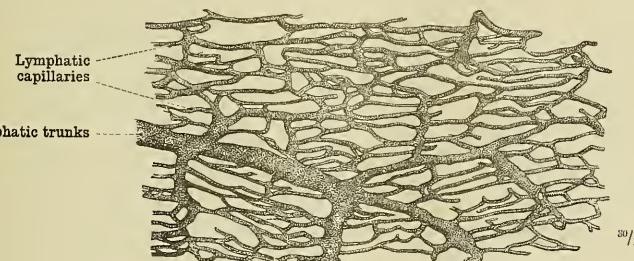


FIG. 940.—LYMPHATIC CAPILLARIES FROM THE MUSCULAR COAT OF THE STOMACH OF THE FROG, INJECTED WITH OPAQUE YELLOW GELATIN.

The Capillary and Subcapillary Lymphatics (Vasa Lymphatica).

Septum of the sheath of the bloodvessels, or septum
vaginae vasorum—Septum vaginae vasorum

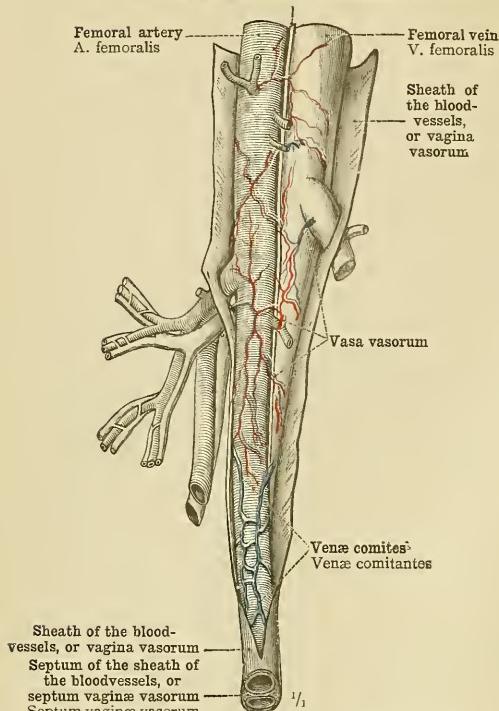


FIG. 941.—THE SHEATH OF THE FEMORAL ARTERY AND VEIN, OPENED. THE VASA VASORUM AND THE VENÆ COMITANTES¹ OF THE FEMORAL ARTERY. SEMIDIAGRAMMATIC.

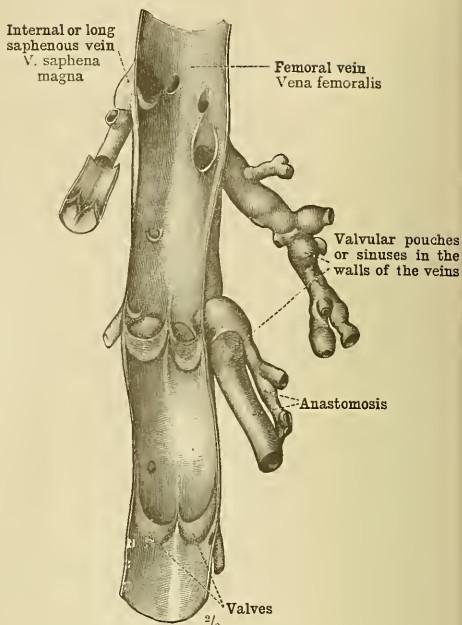


FIG. 942.—THE VALVES OF THE EXCISED FEMORAL VEIN AND ITS BRANCHES.

Helicine arteries—Arteriae helicinae

Fibrous capsule of the corpus cavernosum
Tunica albuginea corporis cavernosi
Artery of the corpus cavernosum—
A. profunda penis

*Cavernous vein²
*Vena cavernosa

Trabeculae of the corpus cavernosum
Trabeculae corporis cavernosi

Intertrabecular spaces, sinuses, or lacunæ of the corpus cavernosum (central and larger)
Lacunæ corporis cavernosi

Intertrabecular spaces, sinuses, or lacunæ of the corpus cavernosum (peripheral and smaller)
Lacunæ corporis cavernosi

FIG. 943.—LONGITUDINAL SECTION THROUGH THE CORPUS CAVERNOSUM OF THE PENIS: RAMIFICATION OF THE ARTERY OF THE CORPUS CAVERNOSUM (ARTERIA PROFUNDA PENIS); ARTERIA HELICINE, HELICINE ARTERIES; VENA CAVERNOSA, *CAVERNOUS VEINS²; THE FIBROUS CAPSULE, THE TRABECULE, AND THE INTERTRABECULAR SPACES, SINUSES, OR LACUNÆ OF THE CORPUS CAVERNOSUM. SEMIDIAGRAMMATIC.

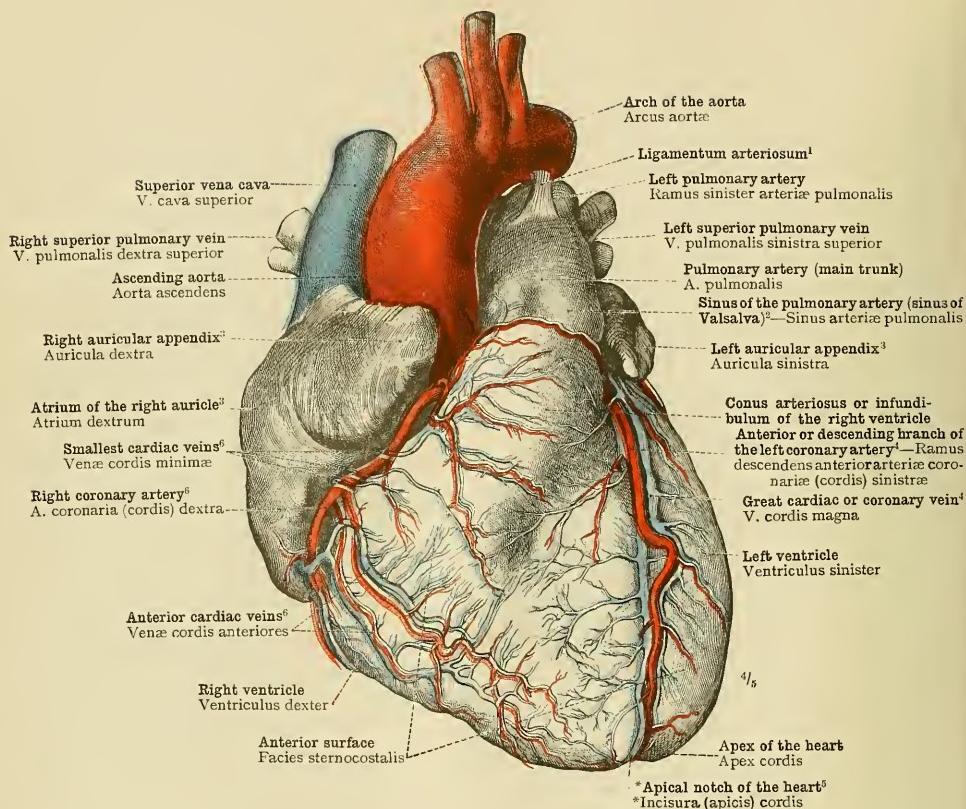
¹ In full, venæ comitantes vel satellites arteriarum.

² Vena Cavernosa.—The venous blood leaves the corpus cavernosum of the penis by two roots. A larger moiety leaves the crura to join the external pudic veins by the veins of the corpora cavernosa (corresponding to the arteries of the same name). The remainder passes by small veins which pierce the fibrous capsule of the corpora cavernosa in the free region of the penis, and, anastomosing with cutaneous veins, join the dorsal vein of the penis. These latter are called by Toldt "cavernous veins."—Tr.

Vasa vasorum.—Vagina vasorum, the sheath of the bloodvessels.—The valves of the veins.—Corpus cavernosum of the penis.

COR

THE HEART



¹ See Appendix, note 111.

² These vessels are named by Macalister the *anterior interventricular artery* and *vein*.—Tr.

³ **Apical Notch of the Heart*.—This is merely the apical portion of the *interventricular groove, furrow, or sulcus*.—Tr.

⁴ See Appendix, note 114.

⁵ *Margo of the Heart*.—These are not mentioned by the author in the original work. The *upper or left border*, conspicuous in the present figure, is shorter, rounder, and thicker than the other, hence it is often called *margo obtusus*; the *lower or right border*, conspicuous in Fig. 945, is longer, and is thus compared with the other; for this reason it is distinguished as *margo acutus*.—Tr.

FIG. 944.—THE HEART SEEN FROM BEFORE, WITH INJECTED CORONARY VESSELS: THE RIGHT CORONARY ARTERY, ARTERIA CORONARIA (CORDIS) DEXTRA; THE ANTERIOR OR DESCENDING BRANCH OF THE LEFT CORONARY ARTERY; THE COMMENCEMENT OF THE GREAT CARDIAC OR CORONARY VEIN, VENA CORDIS MAGNA; THE ANTERIOR CARDIAC AND THE SMALLEST CARDIAC VEINS, VENÆ CORDIS ANTERIORES ET VENÆ CORDIS MINIMÆ. THE LIGAMENTUM ARTERIOSUM, OR LIGAMENT OF BOTALLUS (see Appendix, note 111). MARGO OBTUSUS CORDIS, THE UPPER OR LEFT BORDER OF THE HEART (see note ⁵ above).

The cavities of the heart have been injected with tallow.

External Appearance and Bloodvessels of the Heart.

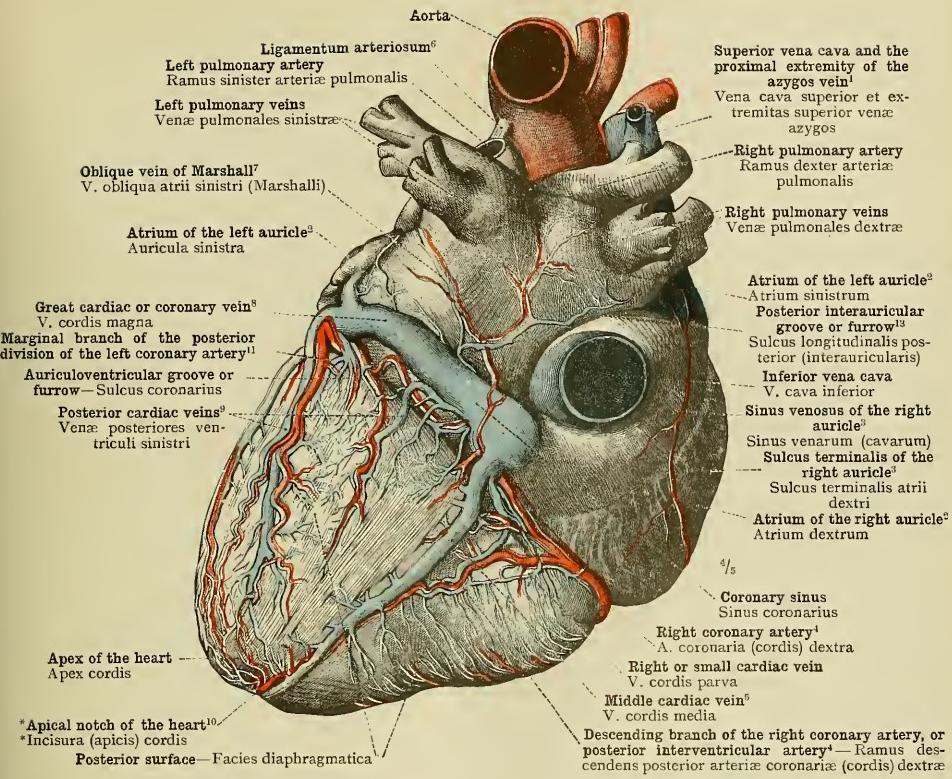


FIG. 945.—THE HEART SEEN FROM BEHIND, WITH INJECTED CORONARY VESSELS: THE RIGHT CORONARY ARTERY, ARTERIA CORONARIA (CORDIS) DEXTRA, WITH ITS DESCENDING BRANCH, RAMUS DESCENDENS POSTERIOR (POSTERIOR INTERVENTRICULAR ARTERY); THE POSTERIOR OR TRANSVERSE BRANCH OF THE LEFT CORONARY ARTERY, RAMUS CIRCUMFLEXUS ARTERIÆ CORONARIÆ (CORDIS) SINISTRÆ, GIVING OFF THE LARGE MARGINAL BRANCH; THE GREAT CARDIAC OR CORONARY VEIN, VENA CORDIS MAGNA, TERMINATING IN THE CORONARY SINUS, SINUS CORONARIUS; THE MIDDLE AND THE RIGHT OR SMALL CARDIAC VEINS, VENÆ CORDIS MEDIA ET PARVA; THE OBLIQUE VEIN OF MARSHALL, VENA OBLIQUA ATRII SINISTRI (MARSHALLI). THE SULCUS TERMINALIS OF THE RIGHT AURICLE, SULCUS TERMINALIS ATRII DEXTRI; AND THE SINUS VENOSUS, SINUS VENARUM (CAVARUM). *CORONA CORDIS (see Appendix, note 118), BASIS CORDIS (see Appendix, note 118), AND THE INFERIOR SURFACE (FACIES DIAPHRAGMATICA) OF THE HEART. MARGO ACUTUS CORDIS, THE LOWER OR RIGHT BORDER OF THE HEART (see note 7 on p. 562).

The same preparation as that seen in Fig. 944, viewed in this case from behind.

External Appearance and Bloodvessels of the Heart.

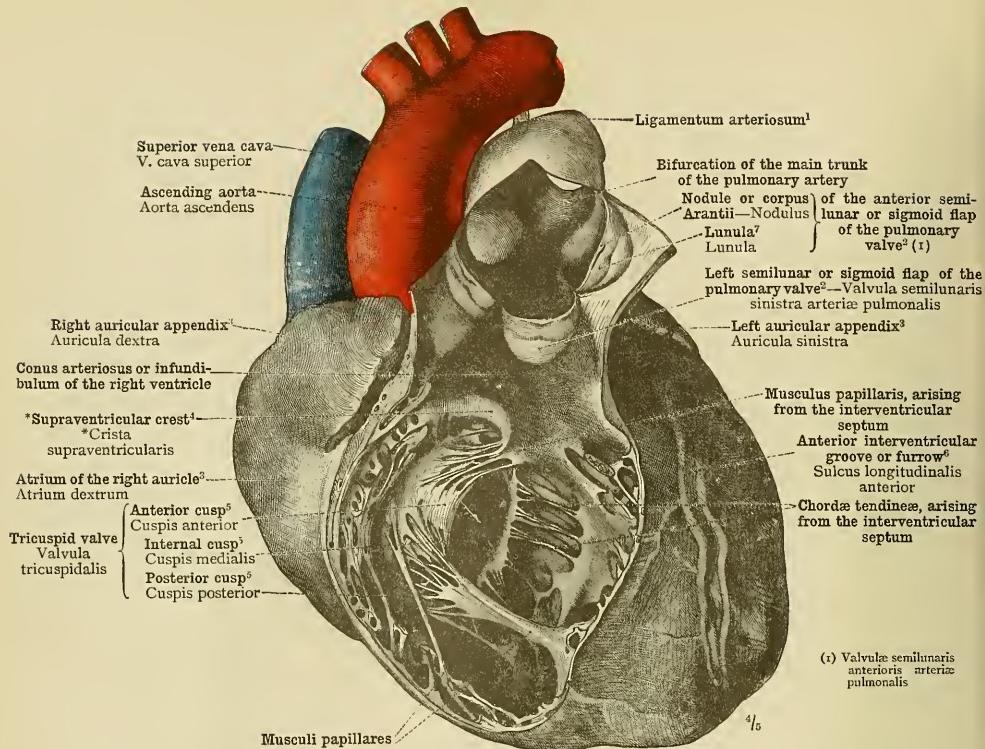


FIG. 946.—THE HEART SEEN FROM BEFORE.

The anterior wall of the right ventricle and of the conus arteriosus or infundibulum has been removed; the main trunk of the pulmonary artery, arteria pulmonalis, has been opened by an incision passing from a point between the anterior and the right semilunar or sigmoid flaps of the pulmonary valve² to the bifurcation, and the anterior wall of the artery has been turned to the left. In this manner the tricuspid valve, valvula tricuspidalis, with its papillary muscles, musculi papillares, and tendinous chords, chordæ tendineæ, and also the semilunar or sigmoid flaps of the pulmonary valve with their nodules, or corpora Arantii, and lunulae, have been brought into view. The heart had previously been hardened in the distended state (*i.e.*, in diastole) by immersion in chromic acid solution and alcohol.

¹ See Appendix, note 114.

² *Flaps of the Aortic and Pulmonary Valves.*—These are differently designated by different authorities. I. The *Pulmonary Valve*.—According to Von Langer and Toldt, the flaps of this valve are *anterior*, *right*, and *left*; according to Quain, they are *right*, *left*, and *posterior*; and according to Macalister, they are (1) *anterior* and to the *left*, (2) *posterior* and to the *right*, and (3) *posterior* and to the *left*. II. The *Aortic Valve*.—According to Von Langer and Toldt, the flaps of this valve are *posterior*, *right*, and *left*; according to Quain, they are *anterior*, *right*, and *left*; and according to Macalister, they are (1) *anterior* and to the *right*, (2) *forward* and to the *right*, and (3) *forward* and to the *left*. The position of these flaps can be accurately determined only by the examination of frozen sections of the thorax. The eleventh plate of Braune's "Atlas of Topographical Anatomy" (English edition) gives an excellent view of the aortic and pulmonary valves, and the arrangement there figured is a normal one; Quain's description is certainly to be preferred. In the text, however, Von Langer and Toldt's nomenclature of the flaps.—Tr.

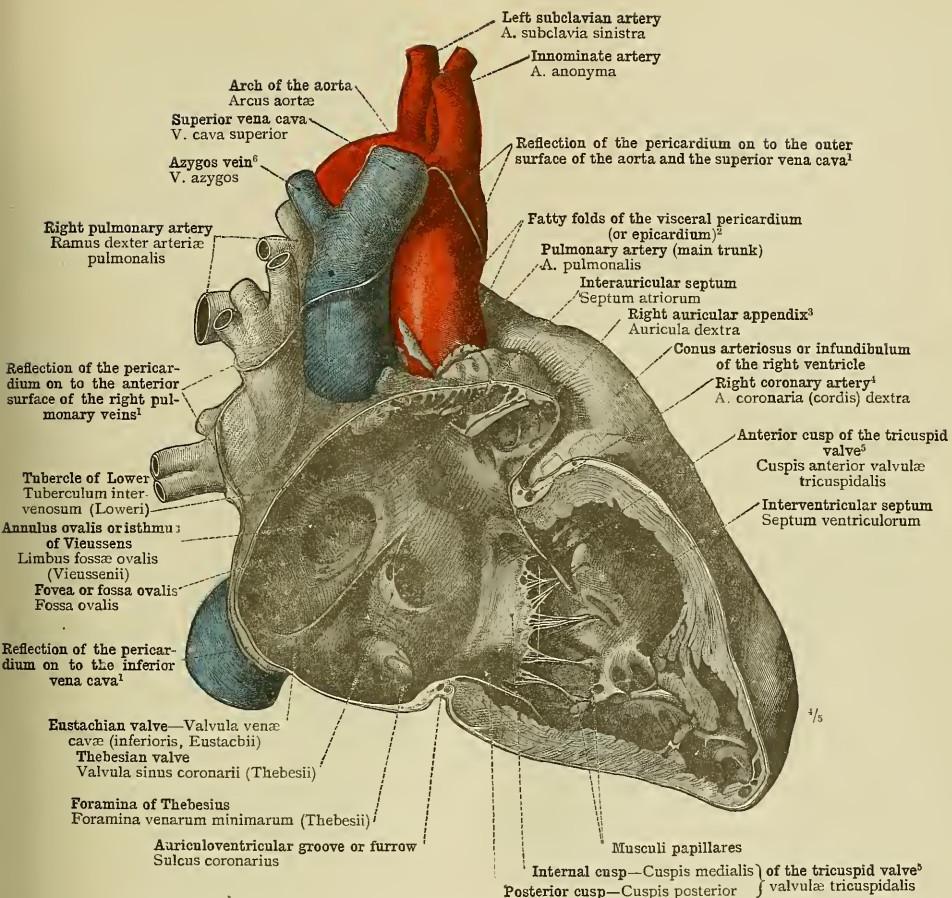
³ See Appendix, note 113.

⁴ **Supraventricular Crest.*—On the inner wall of the right ventricle, between the *ostium venosum* (tricuspid orifice) and the *conus arteriosus* (or infundibulum), there is an eminence that projects freely into the ventricular cavity: this is the *crista supraventricularis*. Thus, whereas on the left side of the heart the mitral and aortic orifices are closely approximated one to the other, and are surrounded by a common ring of muscular tissue, on the right side of the heart the tricuspid and pulmonary orifices are a little distance apart, and each is surrounded by its own ring of muscular tissue. (Von Langer and Toldt, *op. cit.*, p. 48). Quain (*op. cit.*, vol. II., part II., pp. 353, 359), speaking of the tricuspid valve, says: "Between the two the wall of the cavity projects downwards in the form of a thick rounded muscular partition, which corresponds to the beginning of the aorta from the left ventricle"; but he gives the structure in question no name. Macalister (*op. cit.*, p. 327) writes: "Between the auriculoventricular and the pulmonary openings is an area in the septal wall crossed by oblique pilasters, called the *fleshy pons*.—Tr.

⁵ *Tricuspid Valve.*—The *cusps* or *flaps* of this valve are variously named by different authorities. *Cuspis anterior*, the *anterior cusp* of Toldt, is similarly named by Macalister, but by Quain is called the *infundibular* or *left flap*; *cuspis medialis*, the *internal cusp* of Toldt, is called the *right flap* both by Quain and by Macalister; *cuspis posterior*, the *posterior cusp* of Toldt, is called *posterior* also by Macalister, and by Quain the *posterior* or *septal flap*.—Tr.

⁶ See Appendix, note 566.

⁷ *Lunulae.*—This term denotes the thin, narrow portion at the free edge of the semilunar flaps of the aortic and pulmonary valves. Toldt, however, describes one lunula in each flap, in the middle of which is the nodule or corpus Arantii; whereas English anatomists recognise two lunulae in each flap, separated from one another by the nodule.—Tr.



¹ Or junction of the parietal and visceral pericardium (see also note ²).

² Epicardium.—The pericardium, like other serous membranes, consists of outer and inner, or parietal and visceral layers. The visceral or cardia pericardium is called by Toldt the epicardium, and the latter name is occasionally used also in England.—TR.

³ See Appendix, note ¹¹³.

⁴ See Appendix, note ¹¹⁴.

⁵ See note 5 to p. 564.

FIG. 947.—THE HEART SEEN FROM THE RIGHT SIDE.

The heart having been hardened in formalin in the distended state (*i.e.*, in diastole), the right portion of the ventricles and the auricles was removed by a section passing upwards from the apex of the heart to the outer side of the orifices of the superior and inferior *venae cavae*. In the right ventricle, ventriculus dexter, the following structures are seen : The anterior, posterior, and internal cusps of the tricuspid valve (see note ⁵ to p. 564), also the musculi papillares and the chordæ tendineæ that arise from the interventricular septum. In the right auricle we see the fovea or fossa ovalis, with the annulus ovalis or isthmus of Vieussens, and the tubercle of Lower ; also the orifices of the *vena cava*, the Eustachian valve, the orifice of the coronary sinus with the Thebesian valve, and the cavity of the right auricular appendix (auricula dextra). On the aorta, the superior *vena cava*, and the right pulmonary veins, we see the reflection of the parietal pericardium to form the visceral pericardium (see note ² above).

The right auricle—Atrium dextrum.—The right ventricle—Ventriculus dexter.

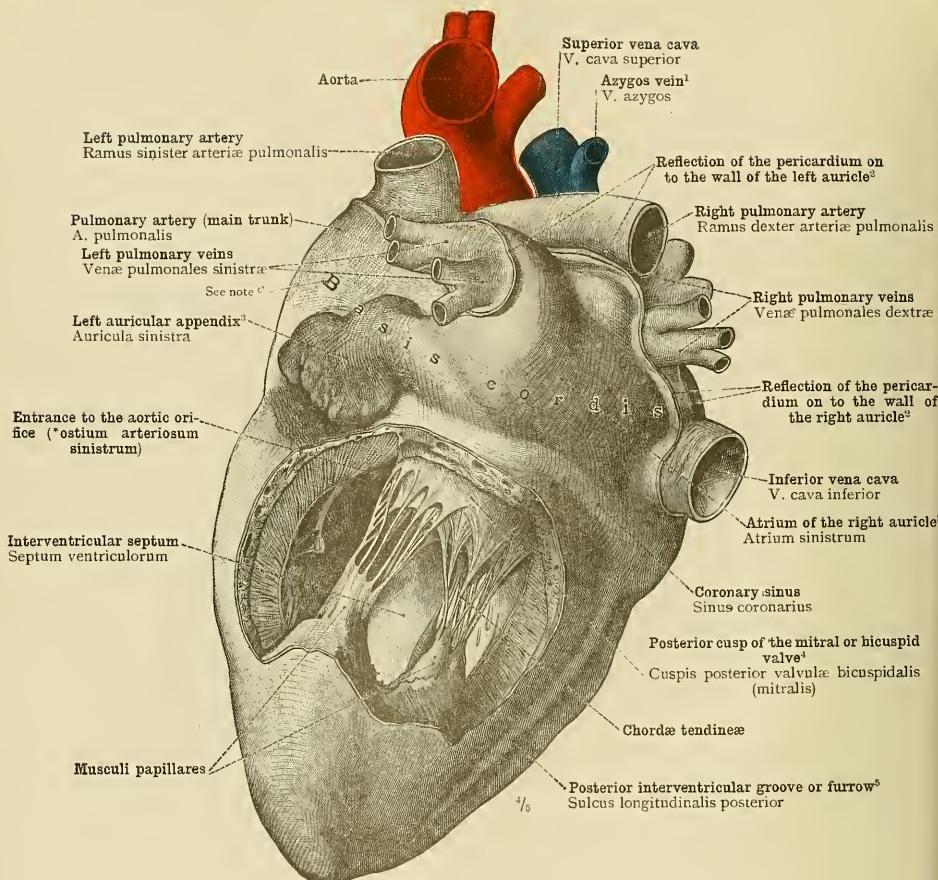


FIG. 948.—THE HEART SEEN FROM THE LEFT SIDE AND BELOW.

In the left ventricle, ventriculus sinister, which has been opened by the removal of a portion of its posterior wall, the mitral or bicuspid valve, valvula bicuspidalis (mitralis), the two musculi papillares, and the chordae tendineae of the latter, are displayed. At the base of the heart the reflection of the parietal pericardium to form the visceral pericardium of the auricles is seen (see notes¹ and² to p. 565). The preparation is the same as that shown in Fig. 946.

¹ Sometimes called the *right* or *large azygos vein*.

² Or junction of the *parietal* with the *visceral pericardium* (epicardium); see also note² to page 565.

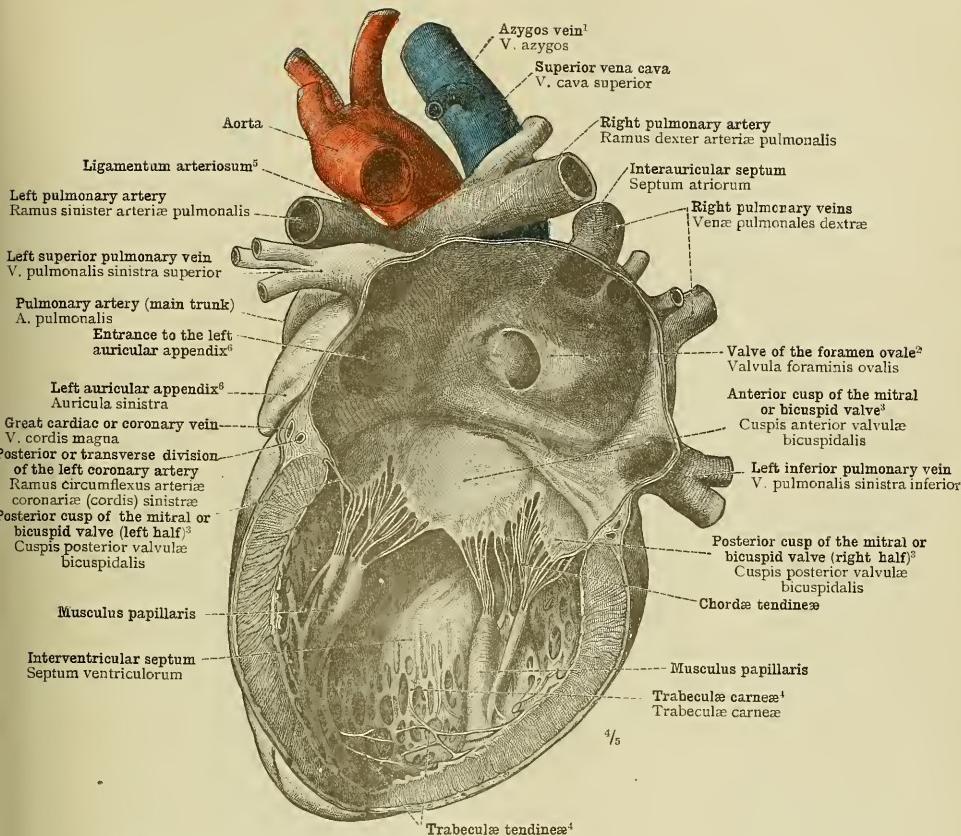
³ See Appendix, note 112.

⁴ *Mitral or Bicuspid Valve*.—The *cusps* or *flaps* of this valve are named *anterior* and *posterior* respectively, but do not lie exactly in front of or behind each other in coronal planes. The *anterior* flap, which is the larger of the two, is to the right as well as in front, between the auricle and the ventricle (hence it is sometimes named the *aortic flap* of the mitral valve); the *posterior* and smaller flap lies to the left of as well as behind the other, and close to the wall of the ventricle. At each side of the orifice, in the angles of junction of the large flaps, are small interventricular flaps.—Tr.

⁵ *Sulcus Longitudinalis*.—Strictly, this term, as used by the author, denotes, not only the interventricular groove or furrow (anterior or posterior, as the case may be), but in addition the much less strongly marked interauricular groove or furrow. In the text, however, I have translated the term *sulcus longitudinalis*, either as *interventricular* or as *interauricular groove or furrow*, according as the ventricular or the auricular part of the *longitudinal sulcus* is indicated in the several figures.—Tr.

⁶ *Basis Cordis*, or *Corona Cordis*.—These terms are used by the author as alternative names for that portion of the heart (together with the intrapericardial extremities of the great vessels) that lies above and to the right of the auriculoventricular groove. In England, however, the term *base of the heart* has a different significance. (See also Appendix, note 116.)—Tr.

Left ventricle—Ventriculus sinister.



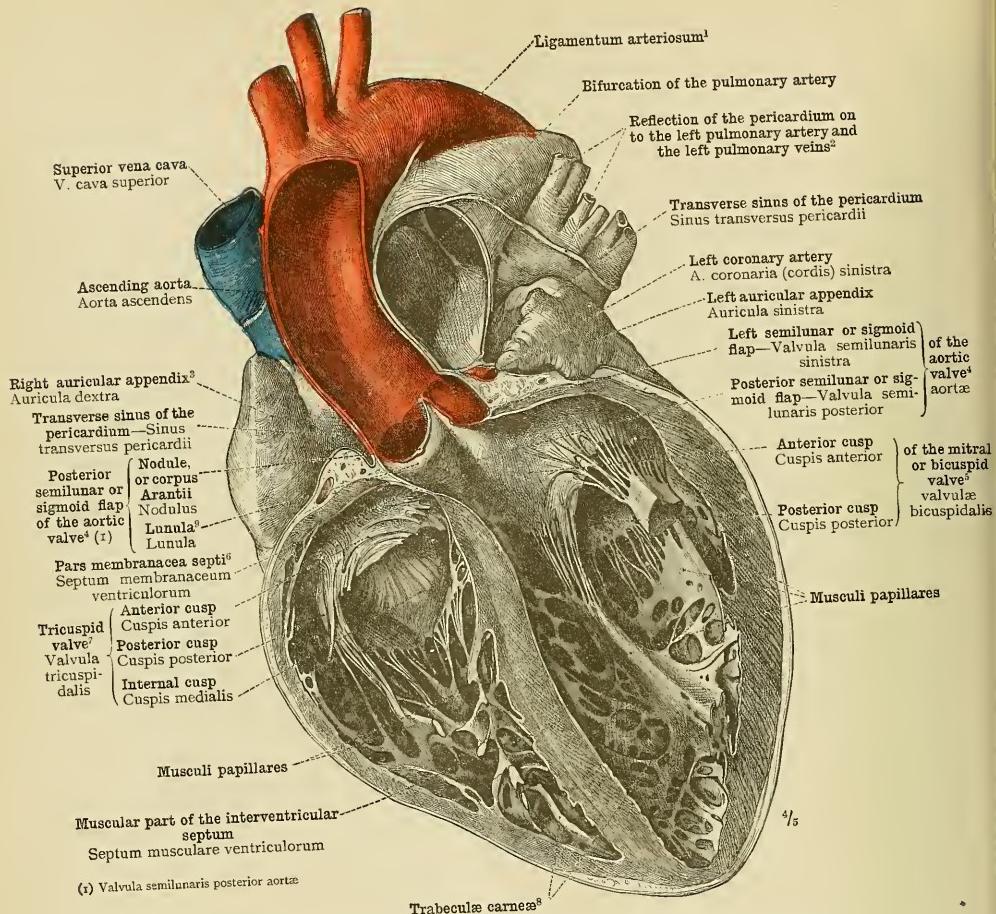
¹ Called also the *right or large azygos vein*.
² Called by Macalister *valvula sinistra sacculi venosæ*.
³ See note 4 to p. 566.

⁴ *Columnæ Carnæ*.—These muscular bands, projecting inwards from the walls into the cavities of the ventricles, are of two kinds: some are simply ridges, termed *pilasters*; others form bridges or beams, attached at their extremities but free in the middle, known as *trabeculae*. Some of the trabeculae, near the apex of the heart, are tendinous throughout the extent of their free parts, and these are distinguished as *trabeculae tendineæ* from the more numerous, *trabeculae carneæ*, which are fleshy throughout.—Tr.
⁵ See Appendix, note 111.
⁶ See Appendix, note 113.

FIG. 949.—THE HEART SEEN FROM THE LEFT SIDE.

The left ventricle and the left auricle have been opened by an incision passing upwards from the apex of the heart to the space between the auricular orifices of the left pulmonary veins, and through the upper wall of the left auricle to the space between the auricular orifices of the right pulmonary veins, and the lateral walls of the cavities have been drawn outwards. In the left ventricle, ventriculus sinister, we see the divided posterior flap, cuspis posterior, and the intact anterior or apical flap, cuspis anterior, of the mitral or bicuspid valve; also the anterior and posterior papillary muscles, musculi papillares, with their chordæ tendineæ; also the interventricular septum, septum ventricularum, the trabeculae carneæ, and, near the apex, a few free tendinous trabeculae, trabeculae tendineæ. In the left auricle we see the orifices of the four pulmonary veins, venæ pulmonales; the interauricular septum, septum atriorum, with its membranous portion, representing the valve of the foramen ovale, and the entrance to the left auricular appendix.

Left auricle—Atrium sinistrum.—Left ventricle—Ventriculus sinister.



¹ See Appendix, note III.

² Or junction of the parietal and visceral pericardium. (See also note ² to p. 565).—TR.

³ See Appendix, note I².

⁴ See note ² to p. 564.

⁵ See note 4 to p. 566.

⁶ The membranous part of the interventricular septum is sometimes spoken of as the undivided space.—TR.

⁷ See note 5 to p. 564.

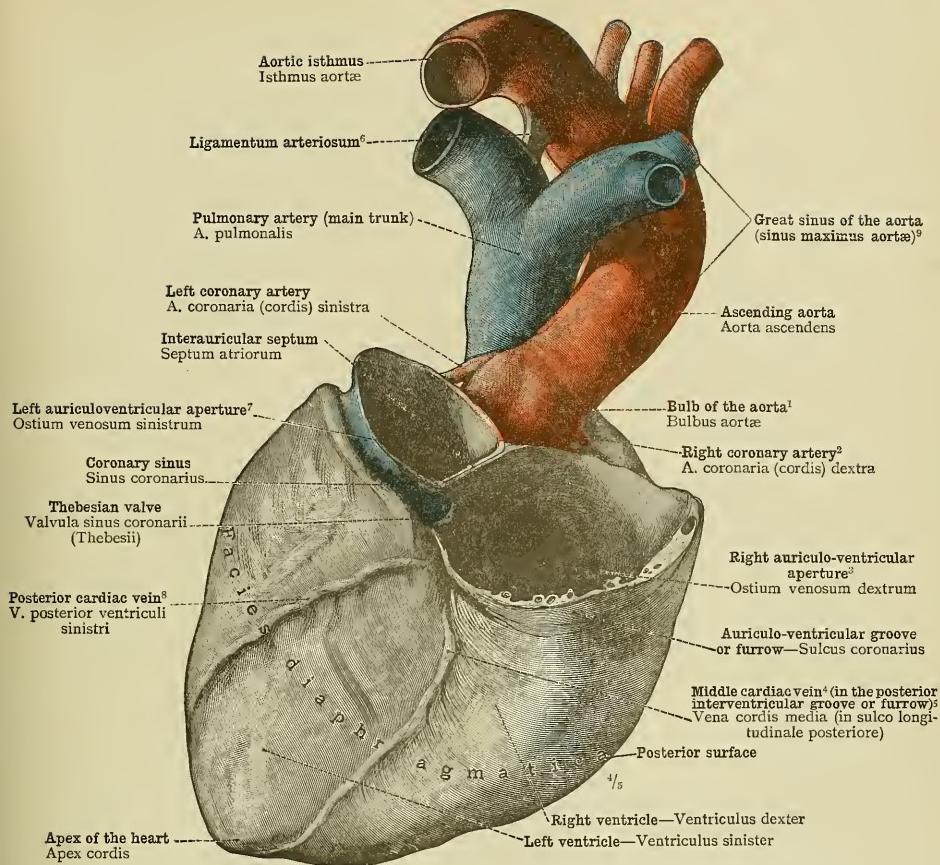
⁸ See note 4 to p. 567.

⁹ See note 7 to p. 564.

FIG. 950.—THE HEART SEEN FROM BEFORE.

The organ having been hardened in formalin in the distended state (*i.e.*, in diastole), the anterior portion of the ³*cone of the heart (*i.e.*, the anterior portion of both ventricles—see Appendix, note ¹¹), the anterior half of the ascending aorta, and the main trunk of the pulmonary artery nearly as far as the bifurcation, were removed by a coronal section. In the opened ⁴*cone of the heart, we see the interventricular septum, at the top of which is the pars membranacea septi, or undefended space (septum membranaceum ventriculorum); all the cusps of the mitral and tricuspid valves; and also the musculi papillares with their chordæ tendineæ. Of the auricles, the right and the left auricular appendices are visible; and between these and the aorta, on the right, and the main trunk of the pulmonary artery, on the left, the entrances to the transverse sinus of the pericardium. In the aortic orifice (ostium arteriosum sinistrum), the posterior semilunar or sigmoid flap of the aortic valve (see note ² to p. 564), with its nodule, or corpus Arantii, and its two lunulae (see note ⁷ to p. 564), is preserved intact. On the anterior surface of the left pulmonary veins, the left pulmonary artery, and the superior vena cava, we see the reflection of the serous layer of the pericardium into the epicardium (see notes ¹ and ² to p. 565).

The Ventricles of the Heart and the Interventricular Septum.



¹ *Bulb of the Aorta.*—This name is often given to the somewhat enlarged portion of the ascending aorta immediately above the aortic valve, which contains the three sinuses of Valsalva.—Tr.

² See Appendix, note ¹¹⁴.

³ See note 5 to p. 566.

⁴ See Appendix, note ¹¹¹.

⁵ Called by Macalister the *left marginal vein*.

⁶ Called by Macalister the *posterior interventricular vein*.

⁷ Or *mitral orifice*.

⁸ See Appendix, note ¹²⁸.

FIG. 951.—THE POSTERIOR SURFACE, FACIES DIAPHRAGMATICA, OF THE *CONE OF THE HEART (*i.e.*, THE VENTRICULAR PORTION OF THE HEART—see Appendix, note ¹¹⁸), WITH THE MAIN TRUNK OF THE PULMONARY ARTERY AND ITS BIFURCATION, THE ASCENDING AORTA, AND THE ARCH OF THE AORTA. THE BULB OF THE AORTA, BULBUS AORTÆ; THE ORIGIN OF THE CORONARY ARTERIES, RIGHT AND LEFT, ARTERIE CORONARÆ (CORDIS), DEXTRA ET SINISTRA. THE LIGAMENTUM ARTERIOSUM, OR LIGAMENT OF BOTALLO, AND THE AORTIC Isthmus, ISTHMUS AORTÆ.

The heart having been hardened in the distended state (*i.e.*, in diastole), the auricles were removed by a section passing immediately above the auriculoventricular groove or furrow (sulcus coronarius), and the coronary sinus was thus laid open as far as the terminal orifice through which it communicates with the right auricle.

The Ventricular Portion of the Heart with the Aorta and the Pulmonary Artery.

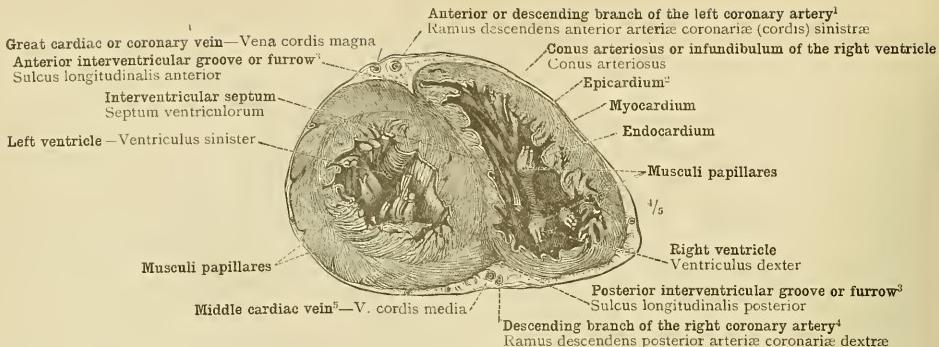


FIG. 952.—THE LOWER HALF OF THE TRANSVERSELY-DIVIDED *CONE OF THE HEART (*i.e.*, THE VENTRICULAR PORTION OF THE HEART—see Appendix, note ¹¹⁸).

On the surface of the section we observe the nearly circular contour of the cavity of the left ventricle, and the sickle-shaped outline of that of the right ventricle; further, that the wall of the heart consists of the heart muscle, or myocardium, lined within by the endocardium, and enveloped without by the epicardium; and, finally, the notably greater thickness of the wall of the left ventricle.

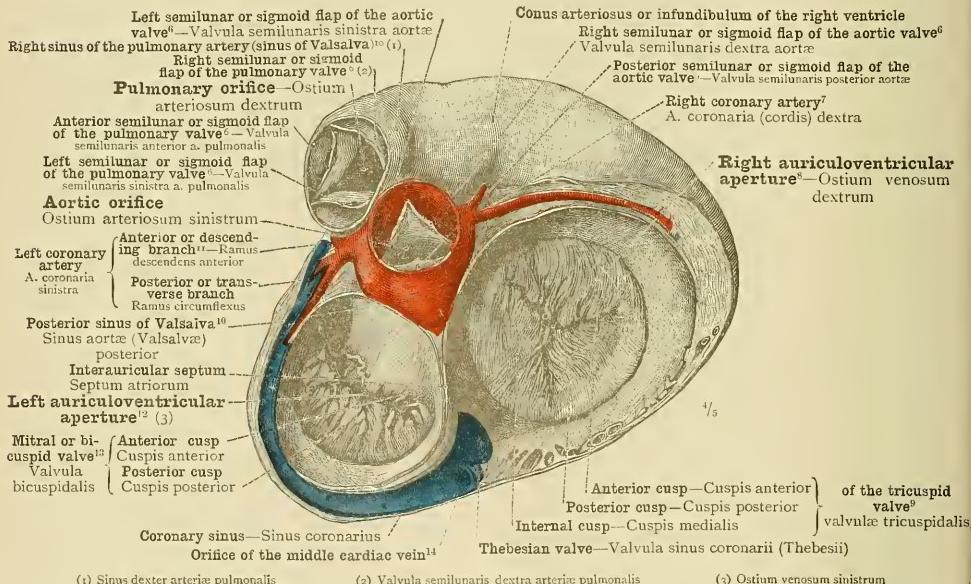


FIG. 953.—THE RELATIVE POSITION OF THE VALVES AND ORIFICES OF THE HEART, AND ALSO OF THE AORTA AND THE MAIN TRUNK OF THE PULMONARY ARTERY JUST ABOVE THEIR RESPECTIVE VALVES.

The section lays open the coronary sinus along its whole length as well as the adjoining portion of the great cardiac or coronary vein, and displays the Thebesian valve and the orifice of the middle cardiac vein. The valves are in the position that obtains during the cardiac systole, the auriculoventricular valves being closed, the pulmonary and aortic valves open.

¹ Called by Macalister the *anterior interventricular artery*.

² See note 3 to p. 566.

³ Called by Macalister the *posterior interventricular vein*.

⁴ Or *tricuspid orifice*.

¹¹ Called by Macalister the *anterior interventricular artery*.

¹⁴ Called by Macalister the *posterior interventricular vein*.

² Or *visceral or cardiac pericardium*—see note 2 to p. 565.

³ Called by Macalister the *posterior interventricular artery*—see Appendix, note ¹¹⁴.

⁴ See note 2 to p. 564.

⁵ See note 5 to p. 564.

⁶ See Appendix, note ¹¹⁴.

⁷ See Appendix, note ¹¹².

¹² Or *mitral orifice*.

¹³ See note 4 to p. 566.

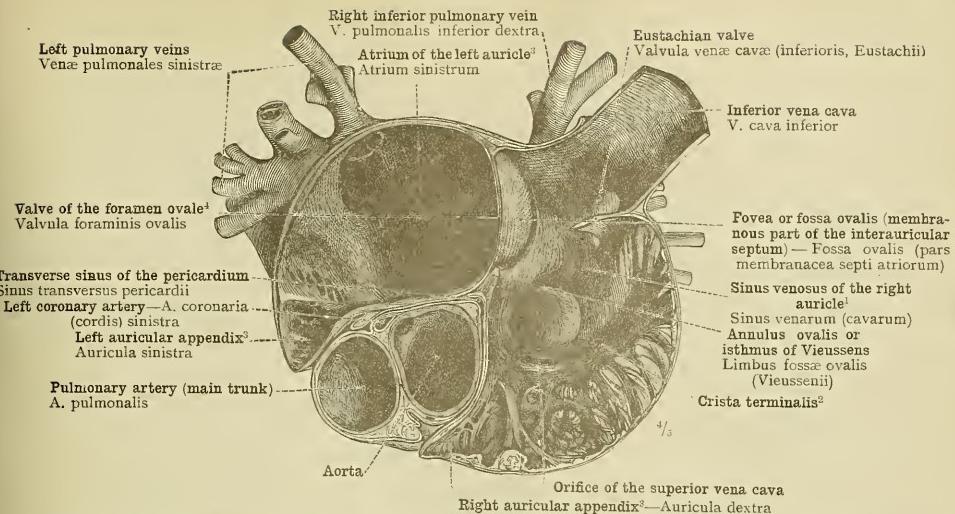


FIG. 954.—SINUS TRANSVERSUS PERICARDII, THE TRANSVERSE SINUS OF THE PERICARDIUM. MUSCULI PECTINATI AND CRISTA TERMINALIS OF THE RIGHT AURICLE². SINUS VENOSUS⁴. THE MEMBRANOUS PART OF THE INTERAURICULAR SEPTUM.

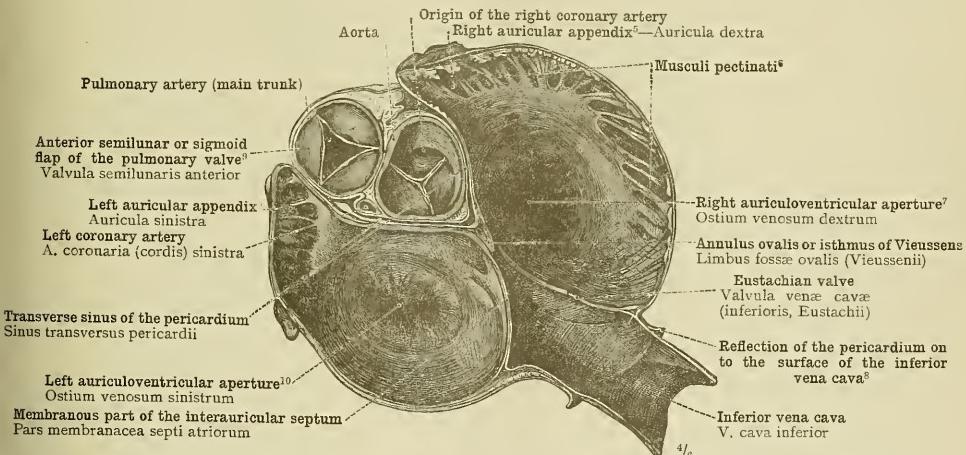


FIG. 955.—THE SEMILUNAR OR SIGMOID FLAPS OF THE AORTIC AND PULMONARY VALVES, WITH THEIR NODULES, OR CORPORA ARANTII (NODULI VALVULARUM SEMILUNARUM). THE MEMBRANOUS PART OF THE INTERAURICULAR SEPTUM AND THE EUSTACHIAN VALVE.

The auricular portion of the heart was removed by a section passing through both auricular appendices, through the root of the aorta and of the pulmonary artery, and hemisectioning the orifice and the proximal portion of the inferior vena cava. In Fig. 954 the upper segment, and in Fig. 955 the lower segment, of the heart is shown.

¹ See Appendix, note 115.

² Crista Terminalis.—This forms the boundary between the smooth wall of the sinus venosus (see Appendix, note 115) and the thickened wall of the rest of the auricle. The fasciculi themselves are called musculi pectinati. The inward projection of the crista terminalis (called by Maclester *sulcus terminalis*) corresponds to the *sulcus terminalis* seen on the outside of the wall of the auricle (see FIG. 945, p. 562).

³ See Appendix, note 113.

⁴ See Appendix, note 113.

⁵ See note 3 above.

⁶ Called by Maclester *valvula sinistra sacci venosi*.

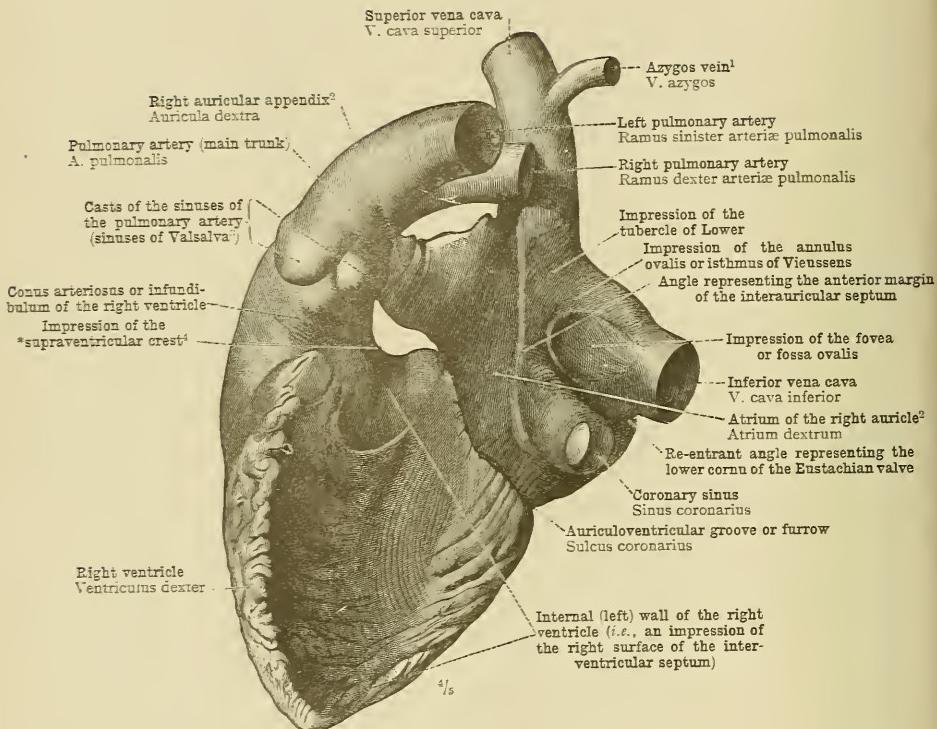
⁷ Or *tricuspid orifice*.

⁸ See note 3 to p. 564.

⁹ Or *mitral orifice*.

¹⁰ Or *inferior vena cava*.

The Mutual Relations of the Auricles, the Aorta, and the Main Trunk of the Pulmonary Artery.



¹ Called also the *right or large azygos vein*.

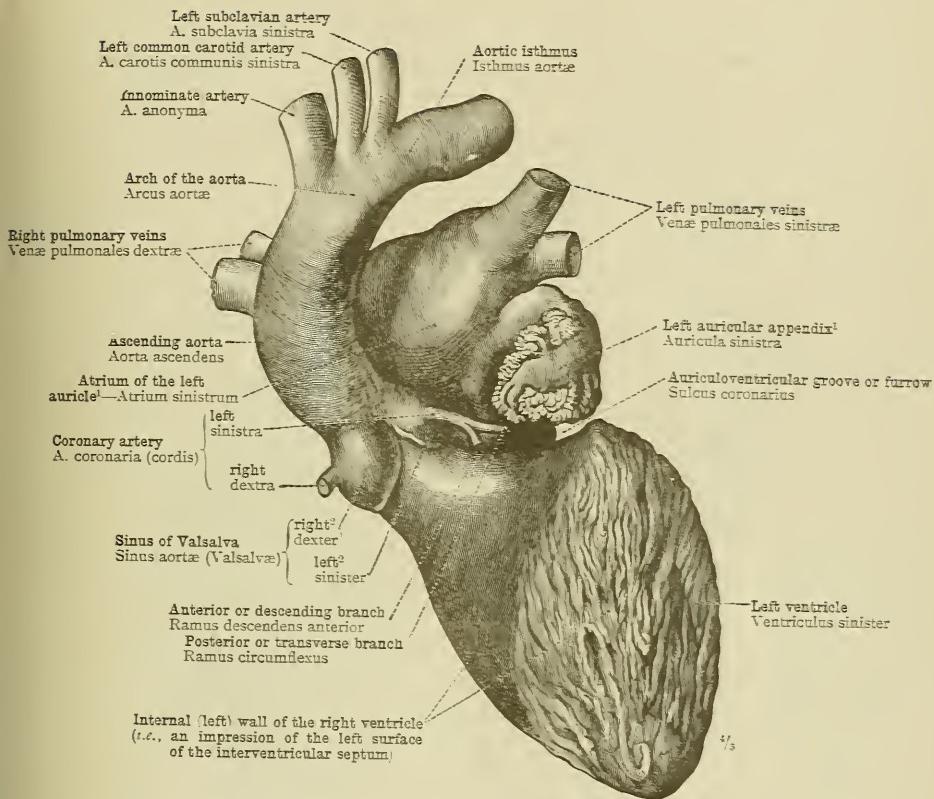
² See Appendix, note 113.

³ See Appendix, note 112.

⁴ See note 4 to p. 564.

FIG. 956.—CAST OF THE INTERIOR OF THE RIGHT SIDE OF THE HEART, WITH THE MAIN TRUNK AND THE BIFURCATION OF THE PULMONARY ARTERY, THE PROXIMAL EXTREMITIES OF THE SUPERIOR AND INFERIOR VENÆ CAVÆ, AND THE CORONARY SINUS, SEEN FROM THE INNER SIDE.

The Configuration of the Right Side of the Heart.



¹ See Appendix, note 113.

² Regarding the position and nomenclature of the several sinuses of Valsalva, the same considerations apply as regarding the several semilunar or sigmoid flaps of the aortic valve—see note ² to p. 514.—Tr.

³ Called by Macalister the *anterior interventricular artery*.

FIG. 957.—CAST OF THE INTERIOR OF THE LEFT SIDE OF THE HEART, WITH THE AORTA TO A POINT A LITTLE BEYOND THE ISTMUS, THE COMMENCEMENT OF THE CORONARY ARTERIES, AND THE PROXIMAL EXTREMITIES OF THE SUPERIOR AND INFERIOR VENAE CAVEÆ, SEEN FROM THE INNER SIDE.

The Configuration of the Left Side of the Heart.

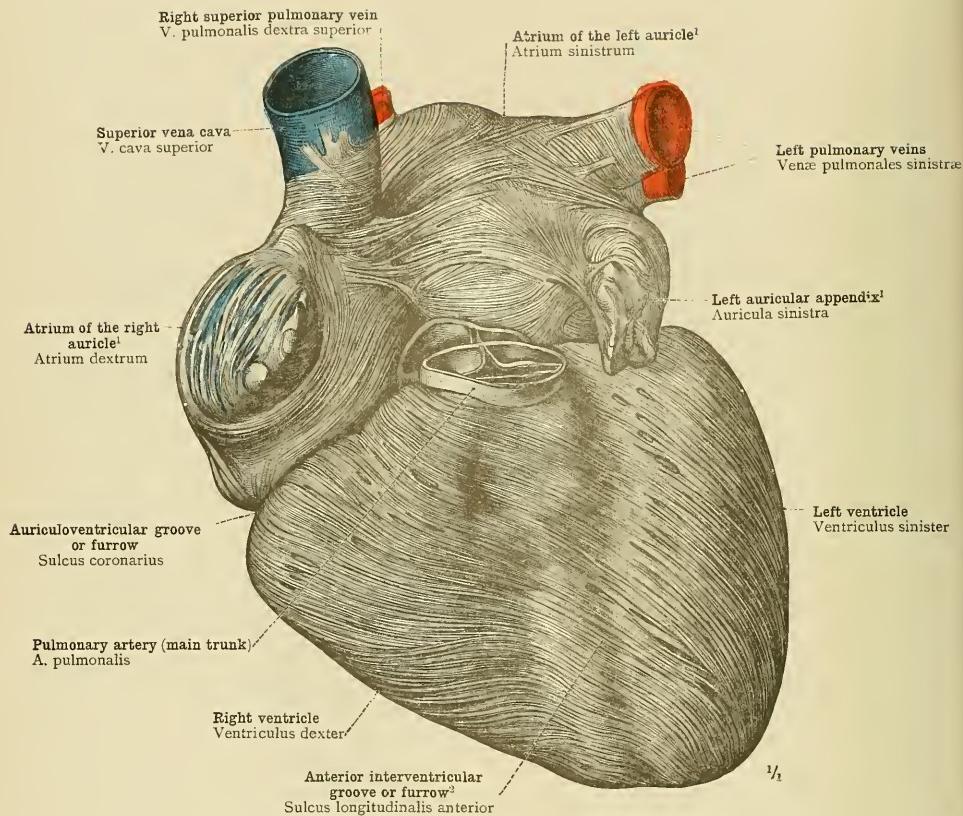
¹ See Appendix, note 113.² See note 5 to p. 566.

FIG. 958.—SUPERFICIAL FIBRES OF THE MYOCARDIUM ON THE ANTERIOR SURFACE OF THE VENTRICLES AND AURICLES.

The heart was injected with tallow prior to dissection.

The Myocardium.

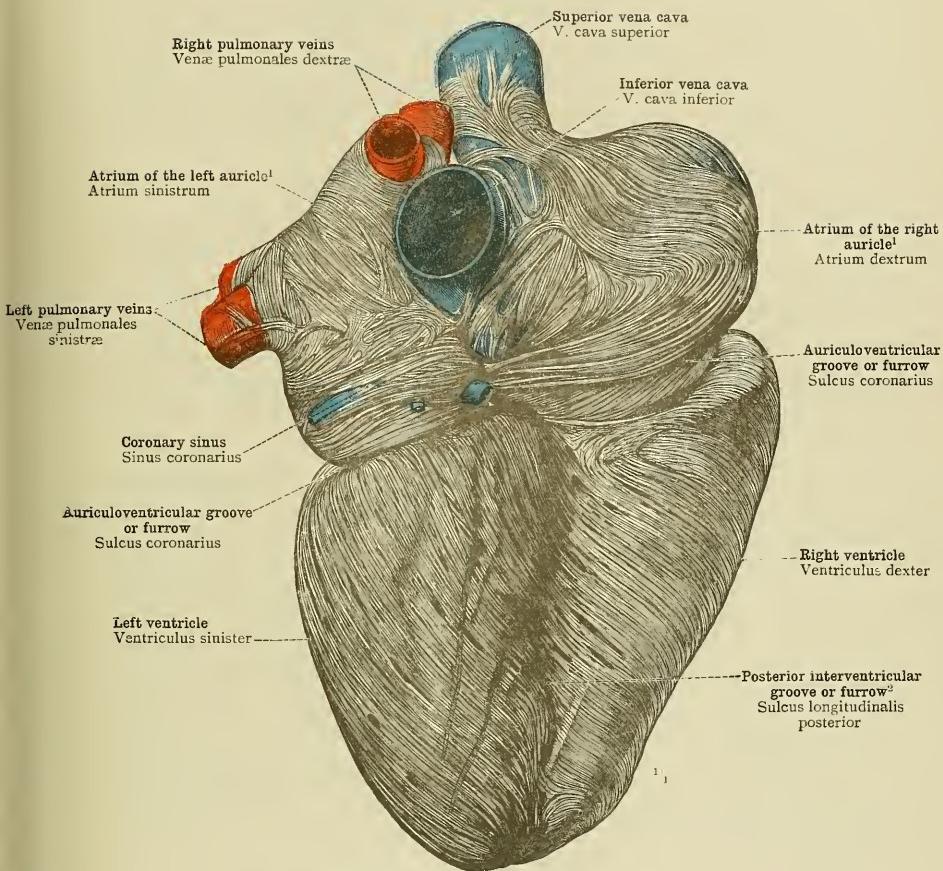
¹ See Appendix, note 113.² See note 5 to p. 566.

FIG. 959.—SUPERFICIAL FIBRES OF THE MYOCARDIUM ON THE POSTERIOR SURFACE OF THE VENTRICLES AND AURICLES.

The preparation shown in Fig. 958, seen from behind.

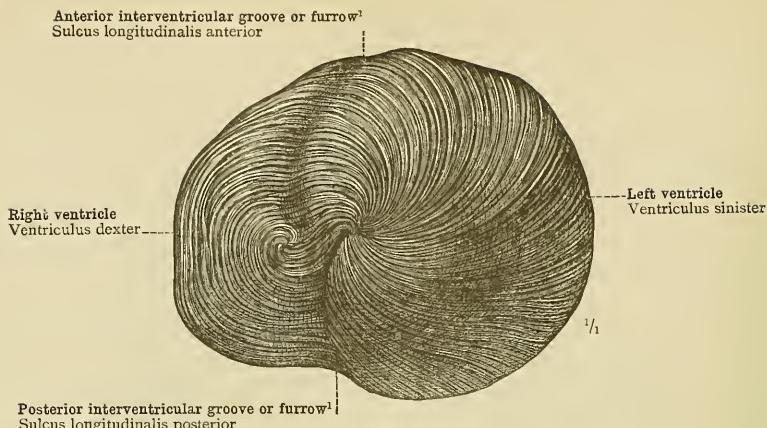


FIG. 960.—VORTEX OR WHORL OF THE HEART, VORTEX CORDIS, AT THE APEX OF THE *CONE OF THE HEART (*i.e.*, OF THE VENTRICULAR PORTION OF THE HEART—see note ¹² to p. 563); SEEN FROM BELOW.

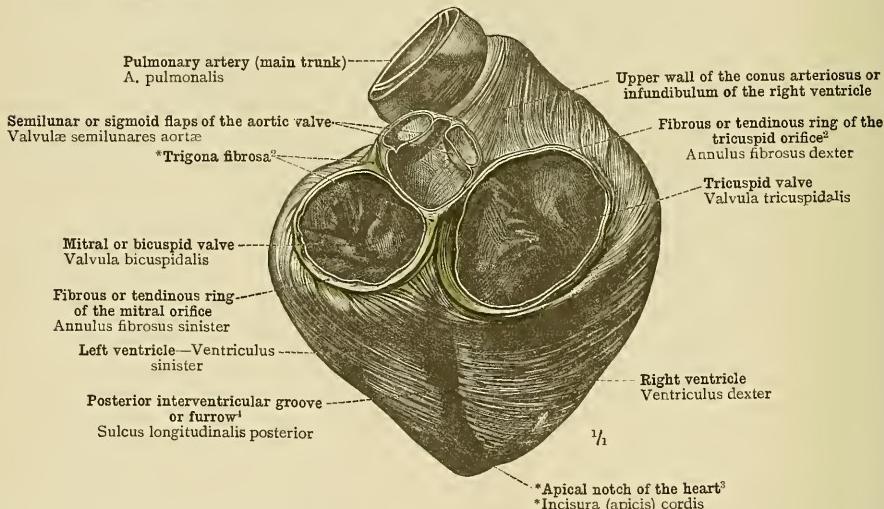


FIG. 961.—THE *CONE OF THE HEART (*i.e.*, THE VENTRICULAR PORTION OF THE HEART—see note ¹² to p. 563) SEEN FROM ABOVE AND BEHIND, WITH THE SUPERFICIAL FIBRES OF THE MYOCARDIUM LAID BARE; THE FIBROUS OR TENDINOUS RINGS OF THE AURICULOVENTRICAL APERTURES, ANNULI FIBROSI, AND THE *TRIGONA FIBROSA.²

¹ See note 5 to p. 566.

² Annuli Fibrosi. ³ *Trigona Fibrosa.—The fibrous or tendinous rings of the auriculoventricular apertures are by Macalister called *zona tendinea*. Connected with these are the *os cordis* (*Trigona Fibrosa* (the term is not used by English anatomists). These are strong triangular masses of fibrocartilage. The right *trigona fibrosa, situated in the angle used by the aortic and the two auriculoventricular openings, corresponds to the *os cordis* of certain mammals, such as the ox. The left *trigona fibrosa lies in front of the mitral orifice, in the angle between that orifice and the left side of the aortic orifice.—Tr.

³ See note 5 to p. 562.

⁴ See note 5 to p. 566.

Vortex cordis—Vortex or whorl of the heart.—Annuli fibrosi—Fibrous or tendinous rings of the auriculoventricular apertures.

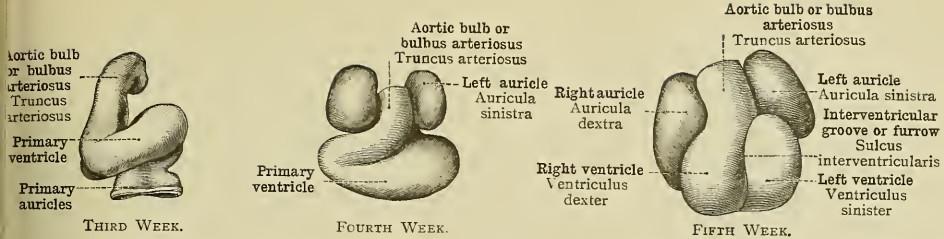


FIG. 962.—STAGES IN THE DEVELOPMENT OF THE HUMAN HEART IN THE FIRST WEEKS OF INTRA-UTERINE LIFE.
(ENLARGED, AFTER W. HIS.)

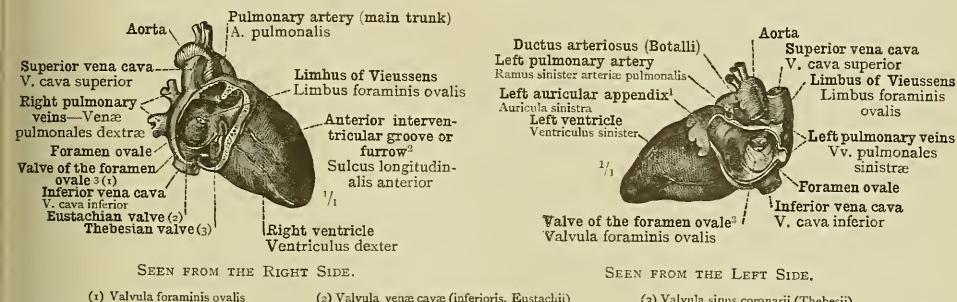


FIG. 963.—FORAMEN OVALE SEPTI ATRIORUM, THE FORAMEN OVALE OF THE INTERAURICULAR SEPTUM, AS SEEN IN THE HEART OF A HUMAN FETUS AT THE END OF THE SIXTH MONTH (MONTHS OF FOUR WEEKS EACH) WHEN THE FREE (OUTER) WALLS OF BOTH AURICLES HAVE BEEN REMOVED.

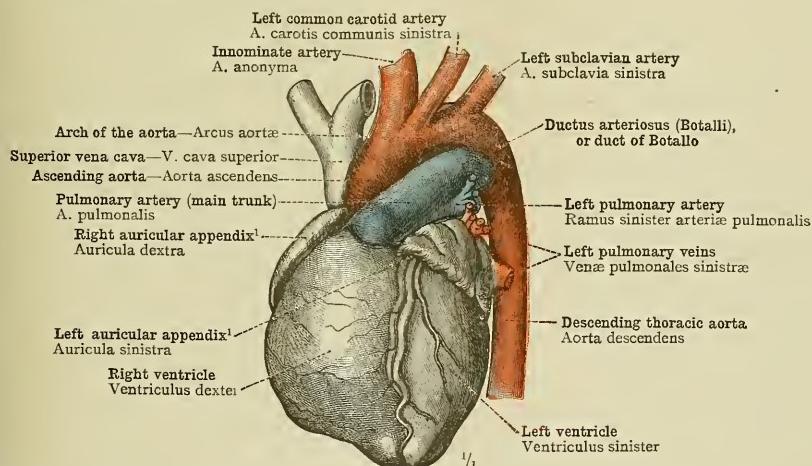


FIG. 964.—THE HEART (INJECTED) OF AN INFANT BORN AT FULL TERM, SEEN FROM THE LEFT SIDE AND BEFORE.
The ductus arteriosus or duct of Botallo is seen to be directly continuous with the main trunk of the pulmonary artery.

¹ See Appendix, note 113.

² Called by Macalister *valvula sinistra sacci venosi*.

² See note 5 to p. 566.

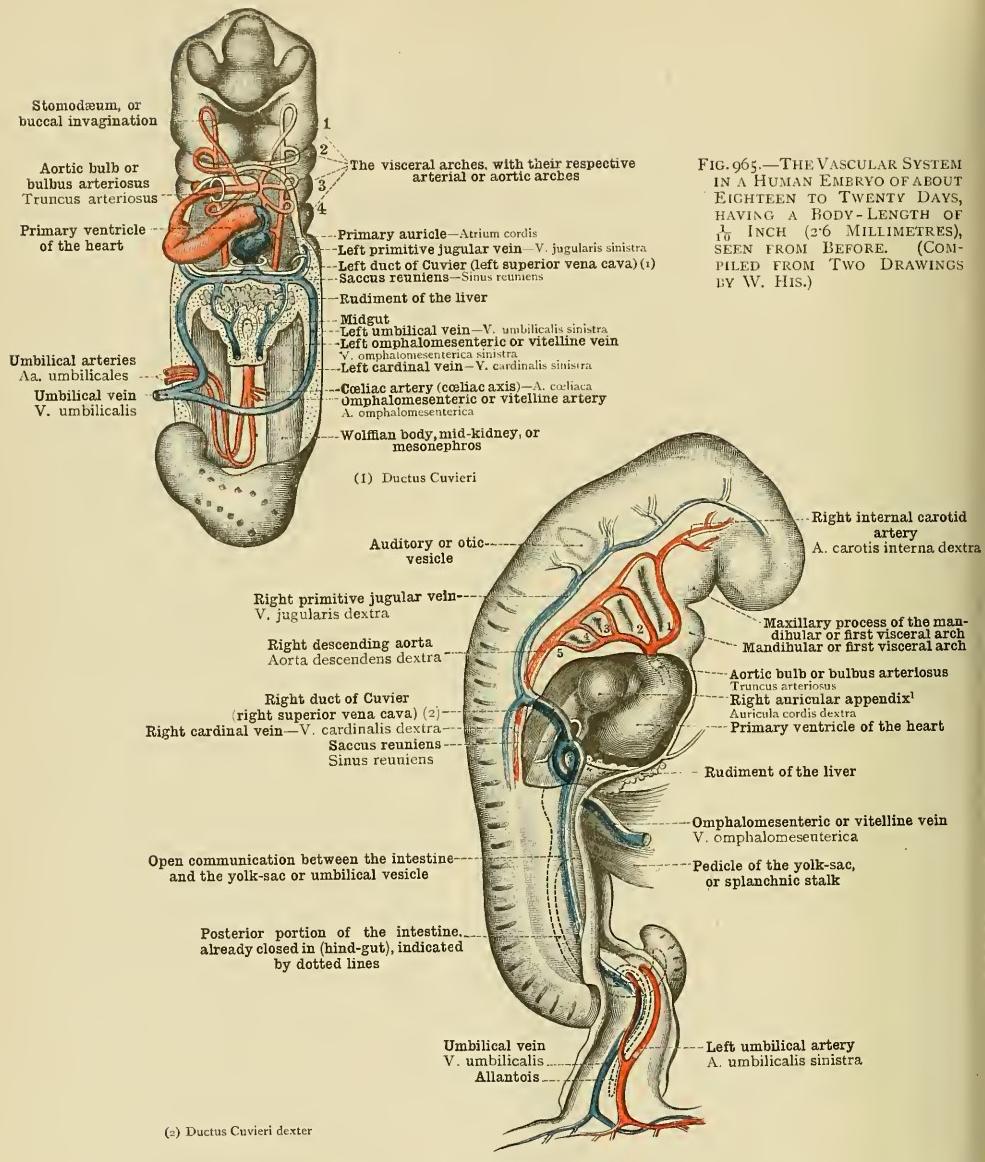


FIG. 966.—CONDITION OF THE HEART AND VASCULAR SYSTEM IN A HUMAN EMBRYO OF THE TWENTY-SECOND OR TWENTY-THIRD DAY, HAVING A BODY-LENGTH OF $\frac{1}{6}$ INCH (4.2 MILLIMETRES), SEEN FROM THE RIGHT SIDE. (AFTER W. HIS.)

The Vascular System at the End of the Third and in the Beginning of the Fourth Week of Intra-uterine Life.

¹ See Appendix, note 113.

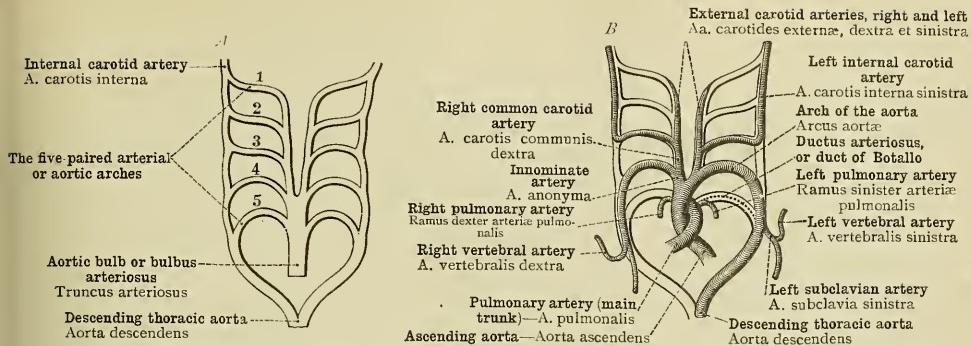


FIG. 967.—DIAGRAMMATIC REPRESENTATION OF THE TRANSFORMATION OF THE ARTERIAL OR AORTIC ARCHES.
A. THEIR ORIGINAL ARRANGEMENT. B. THEIR SUBSEQUENT TRANSFORMATION INTO THE PERMANENT ARTERIAL TRUNKS. (AFTER RATHKE, WITH A SLIGHT MODIFICATION BY F. HOCHSTETTER.)

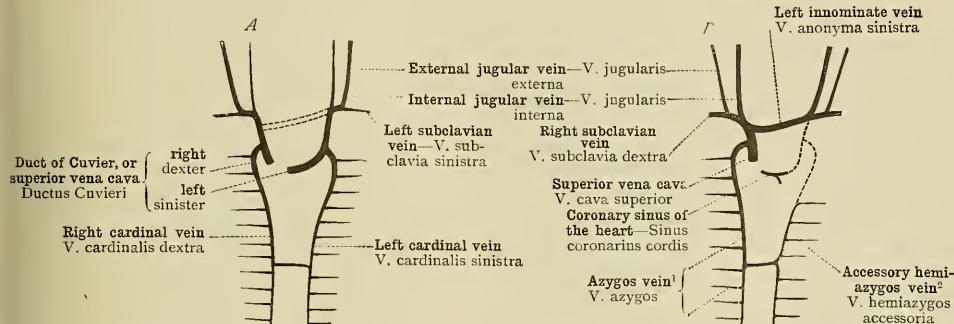


FIG. 968.—DIAGRAMMATIC REPRESENTATION OF THE RUDIMENTARY ARRANGEMENT OF THE SYSTEMIC SYSTEM OF VEINS (A), AND OF THE TRANSFORMATION OF THE SYSTEM OF THE SUPERIOR VENA CAVÆ (B). (AFTER RATHKE, WITH MODIFICATIONS BY F. HOCHSTETTER.)

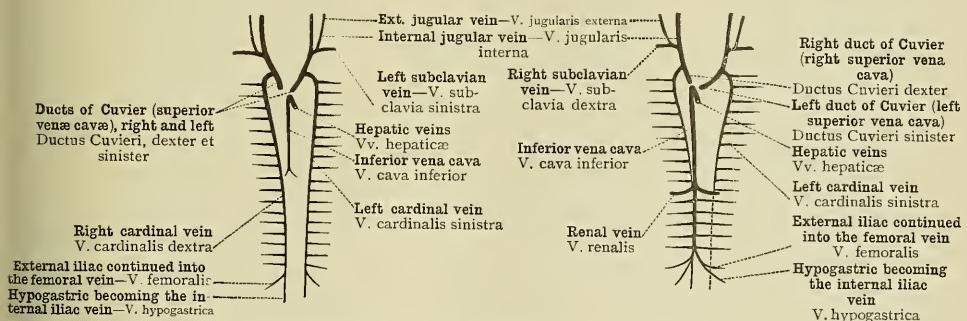
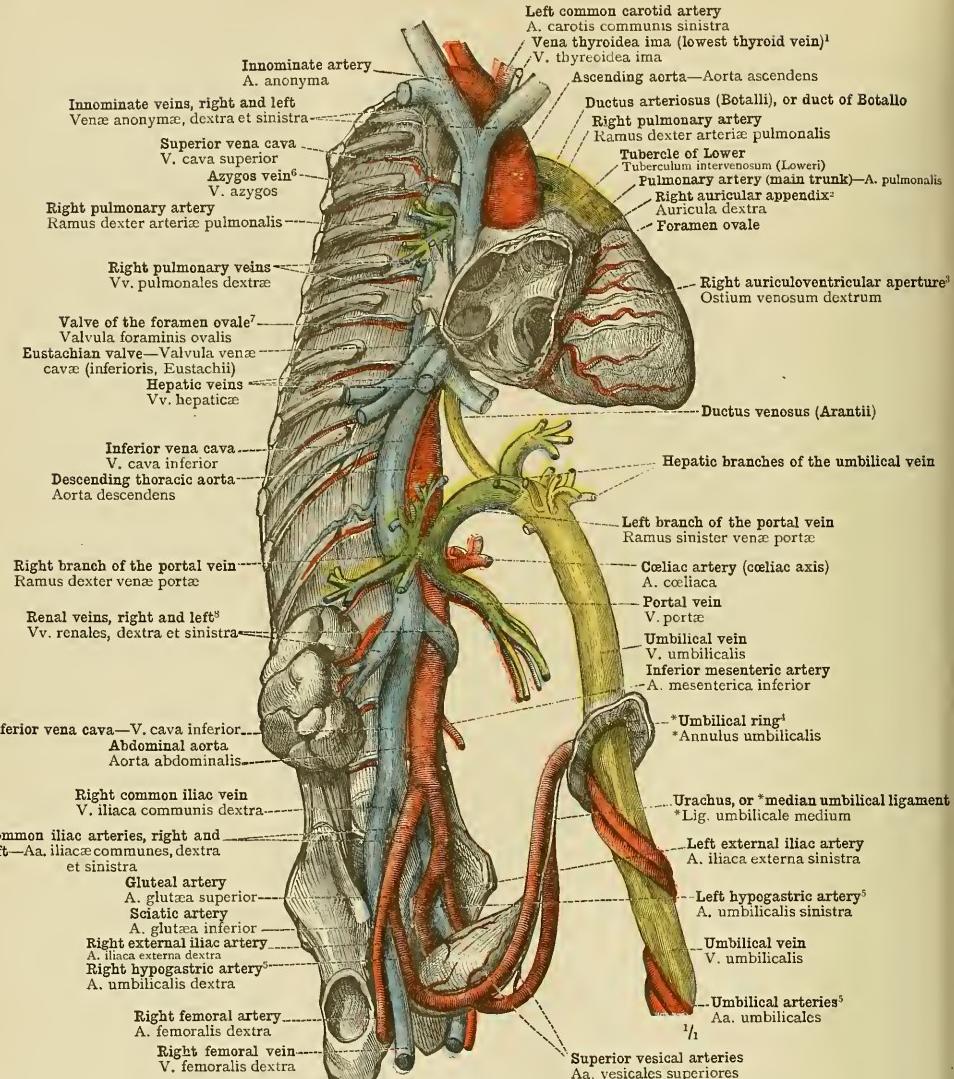


FIG. 969.—DIAGRAMMATIC REPRESENTATION OF THE DEVELOPMENT OF THE INFERIOR VENA CAVA. (AFTER RATHKE, IMPROVED BY F. HOCHSTETTER.)

¹ Called also the *right or large azygos vein*.

² Called also the *left upper azygos vein*.

The Rudimentary Condition of the Arterial and Venous Systems, and the Transformations by which the Normal Adult Condition of these Systems is attained.

* Companion to the *thyroidea ima* artery—see note 1 to p. 590.—TR.3 Or *tricuspid orifice*.6 Called also the *right or largeazygos vein*.8 Sometimes called the *enlarged veins*. See note 3 to p. 595.—TR.

2 See Appendix, note 113.

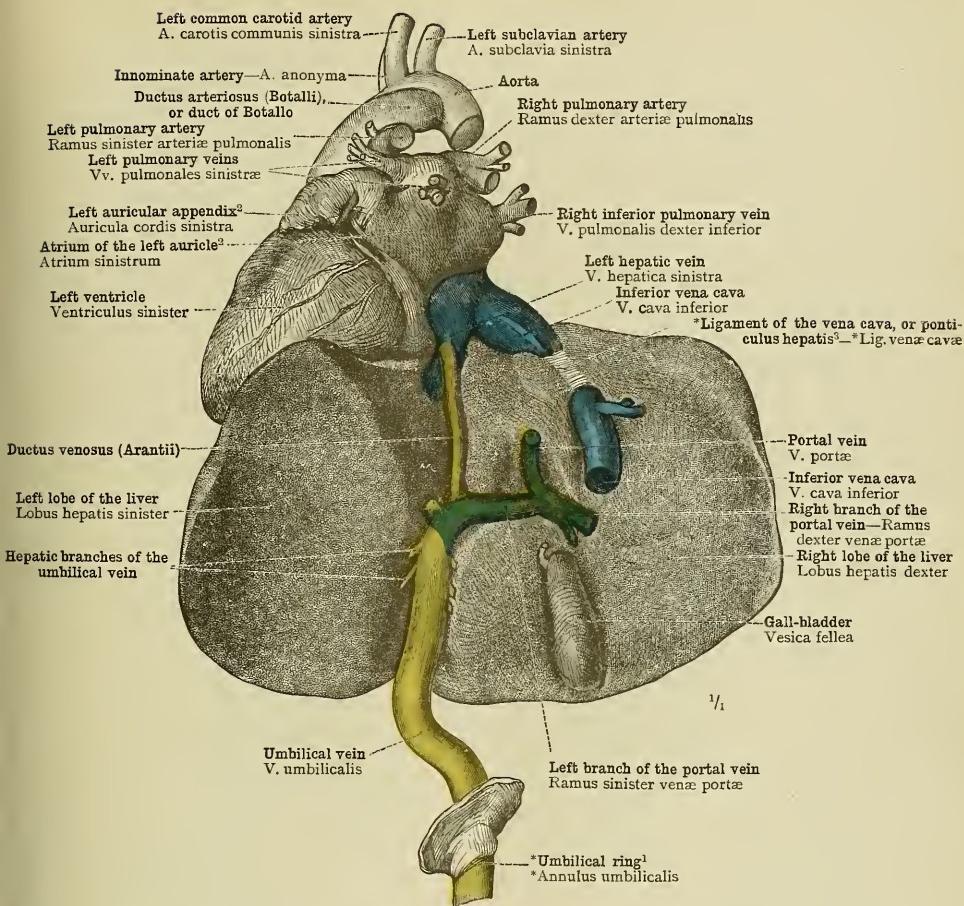
5 See Appendix, note 120.

4 See Appendix, note 119.

7 Called by Macalister *valvula sinistra sacri venosi*.FIG. 970.—THE CIRCULATORY APPARATUS OF THE FETUS, AS SEEN IN AN INFANT STILL-BORN AT FULL TERM.
VIEWED FROM THE RIGHT SIDE.

The right wall of the right auricle has been removed, to show the foramen ovale and its valve, and also the Eustachian valve. The umbilical vein with its hepatic branches and the ductus venosus (Arantii) are coloured yellow; the portal vein, the pulmonary arteries, and the ductus arteriosus (Botalli), are coloured green.

The Foetal Circulatory Apparatus.



² See Appendix note ¹¹⁰.

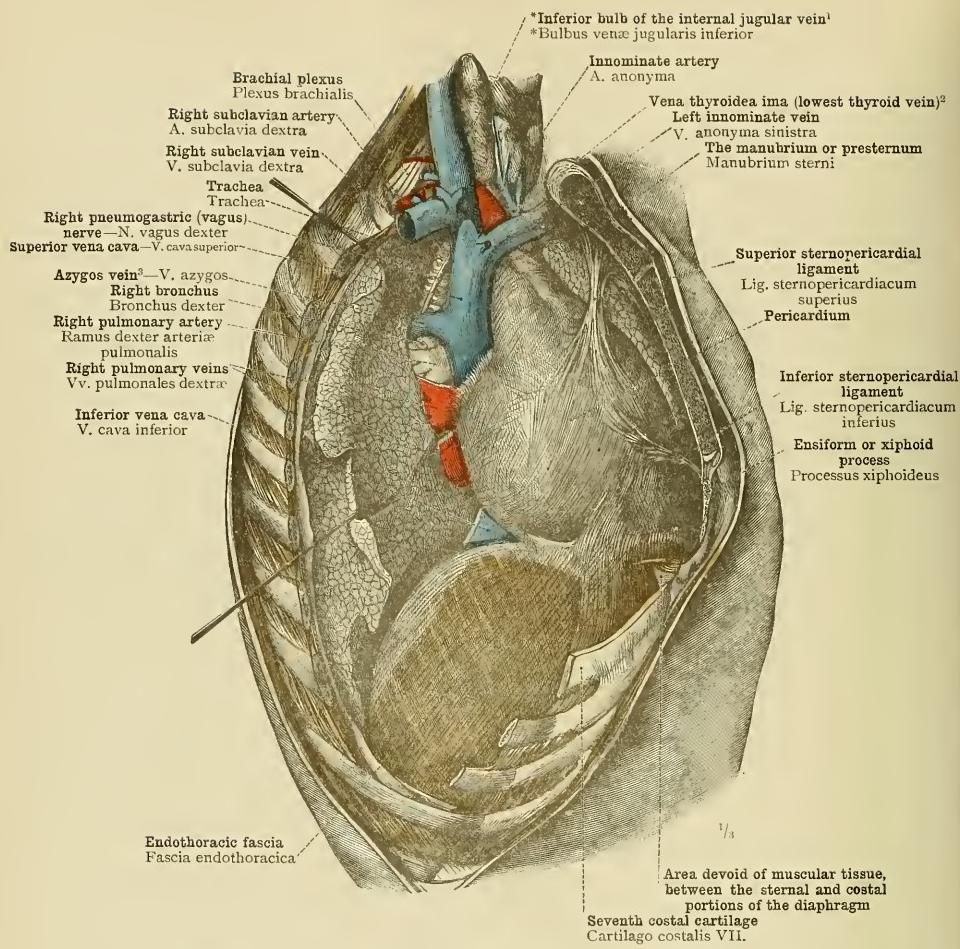
³ See Appendix, note ¹¹³.

³ See Appendix, to Part IV., note ¹⁷.

FIG. 971.—THE LIVER AND THE HEART OF AN INFANT STILL-BORN AT FULL TERM. THE UMBILICAL VEIN, VENA UMBILICALIS, FROM THE *UMBILICAL RING (see Appendix, note ¹¹⁰) TO ITS TERMINATION IN THE LEFT BRANCH OF THE PORTAL VEIN, AND THE HEPATIC BRANCHES GIVEN OFF FROM THE UMBILICAL VEIN IN THE UMBILICAL FISSURE OF THE LIVER; THE DIVISION OF THE PORTAL VEIN, VENA PORTÆ, INTO ITS RIGHT AND LEFT BRANCHES; THE ORIGIN OF THE DUCTUS VENOSUS (ARANTII) IN THE LEFT BRANCH OF THE PORTAL VEIN, AND ITS TERMINATION IN THE LEFT HEPATIC VEIN.

The liver is represented as seen from below; the heart, as seen from behind. The short remaining portion of the trunk of the portal vein has been turned upwards.

The Foetal Circulation in Relation to the Liver.



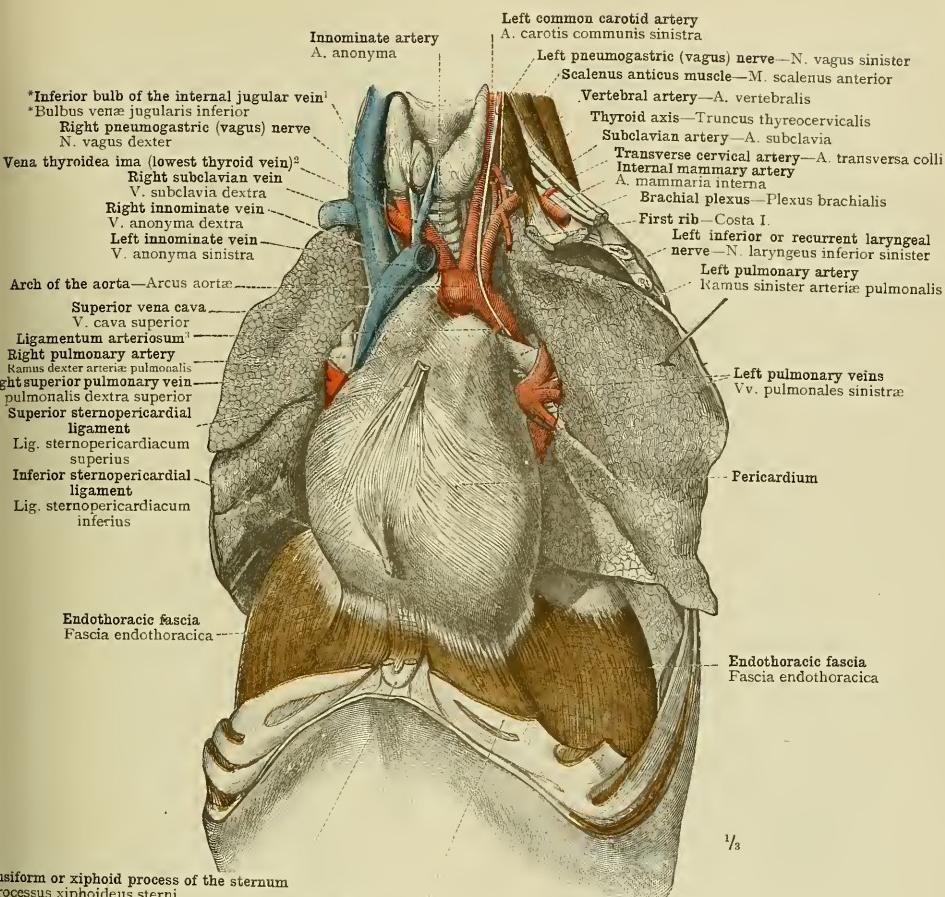
¹ See Appendix, note 121.

² Companion to the *thyroidea ima* artery—see note ¹ to p. 590.—TR.
3 Called also the *right* or *large azygos vein*.

FIG. 972.—POSITION AND RELATIONS OF THE PERICARDIUM; ITS CONNEXIONS WITH THE ENDOTHOORACIC FASCIA AND WITH THE DIAPHRAGM. PROLONGATION OF THE FIBROUS LAYER OF THE PERICARDIUM TO FORM TUBULAR INVESTMENTS FOR THE AORTA, THE SUPERIOR VENA CAVA, AND THE RIGHT PULMONARY VEINS. THE SUPERIOR AND INFERIOR STERNOPLICARDIAL LIGAMENTS. SEEN FROM THE RIGHT SIDE AND BEFORE.

The sternum having been divided sagittally in the median plane, its left half was drawn a little forwards; the right wall of the thorax was removed as far down as the tenth rib; and the right lung was drawn backwards as far as possible, in order to display the vessels forming its root.

The Pericardium.—The Sternopericardial Ligaments.



Xiphoid or xiphoid process of the sternum

Processus xiphoideus sterni

Seventh costal cartilage
Cartilago costalis VII.¹ See Appendix, note ¹²¹.² Companion to the *thyroidea ima* artery—see note ¹ to p. 590.—TR.³ See Appendix, note ¹¹¹.

FIG. 973.—POSITION AND RELATIONS OF THE PERICARDIUM; ITS CONNEXIONS WITH THE ENDOTHORACIC FASCIA AND WITH THE DIAPHRAGM; PROLONGATION OF ITS FIBROUS LAYER TO FORM TUBULAR INVESTMENTS FOR THE ARCH OF THE AORTA, THE LEFT PULMONARY ARTERY, AND THE LEFT PULMONARY VEINS. ON THE ANTERIOR WALL OF THE PERICARDIUM, THE REMAINS OF THE STERNOPERICARDIAL LIGAMENTS, WHICH HAVE BEEN DIVIDED, ARE VISIBLE. SEEN FROM THE LEFT SIDE AND BEFORE.

In the preparation shown in Fig. 972, the left wall of the thorax was removed to the same extent as the right wall had already been cut away, and both lungs were drawn backwards as far as possible, in order to display the vessels of the roots of the lungs.

The Pericardium.—The Sternopericardial Ligaments.

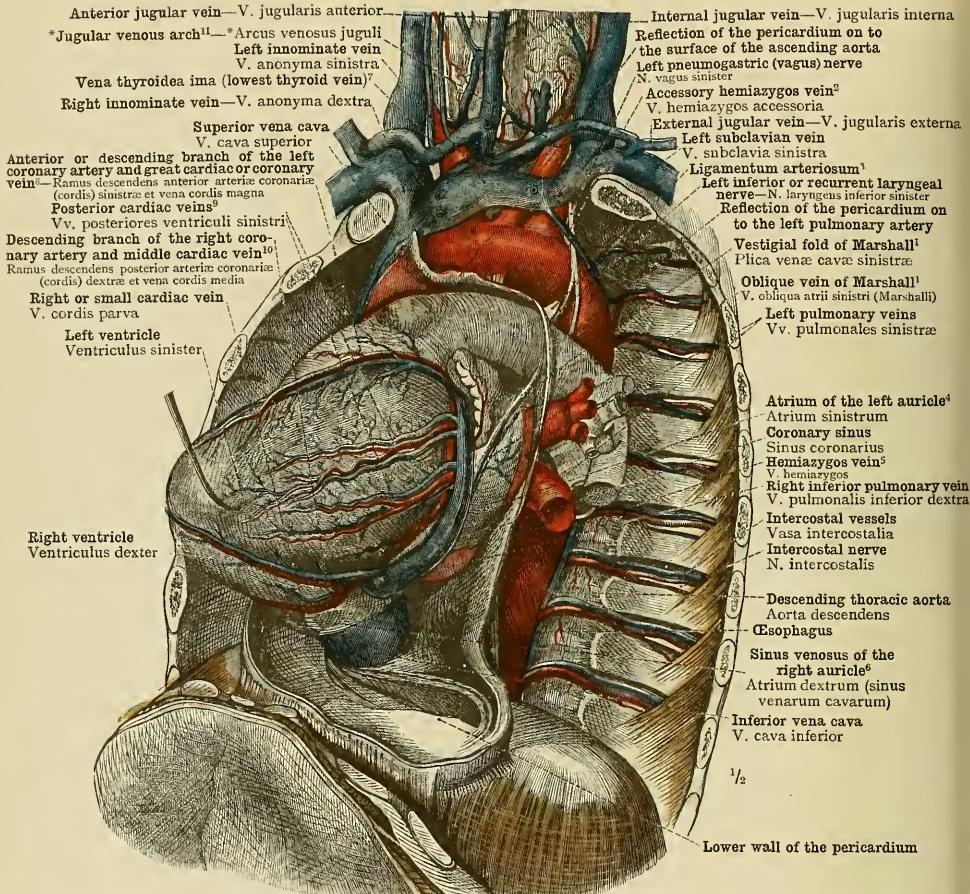
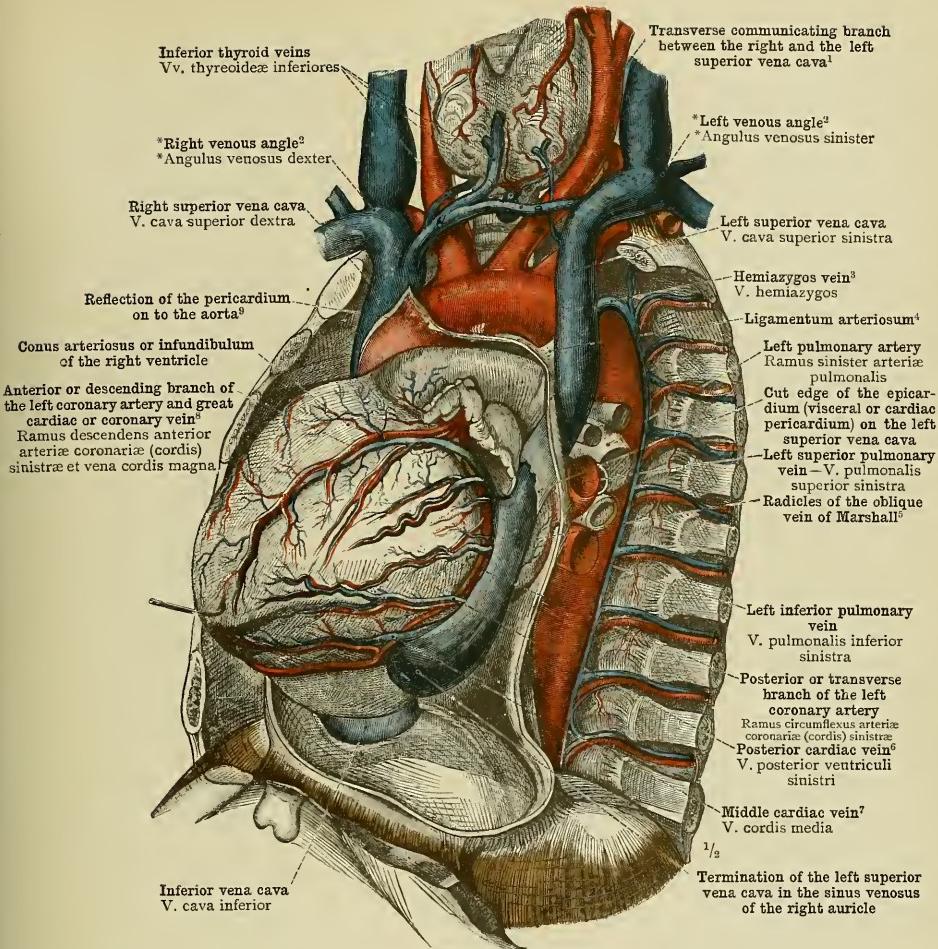
¹ See Appendix, note 122.⁴ See Appendix, note 113.⁷ Companion to the *thyroidea ima artery*—see note ¹ to p. 590.—Tr.⁸ Called by Macalister the *anterior interventricular artery* and *vein*.¹⁰ Called by Macalister the *posterior interventricular artery* and *vein*.² Called also the *left upper azygos vein*.⁵ Known also as the *left lower or small azygos vein*.³ See Appendix, note 111.⁶ See Appendix, note 115.⁹ Called by Macalister the *left marginal veins*.¹¹ See Appendix, note 123.

FIG. 974.—THE VESTIGIAL FOLD (PLICA VENÆ CAVÆ SINISTRÆ—see Appendix, note 122), AND ITS RELATION TO THE OBLIQUE VEIN OF MARSHALL (VENA OBLIQUA ATRII SINISTRI MARSHALLI—see Appendix, note 116). SEEN FROM BEFORE, BELOW, AND THE LEFT SIDE.

The sternum having been removed and the greater part of the left lateral wall of the thorax having been cut away, the front and the left side of the pericardium were removed by incisions passing along the attachments of the membrane to the great vessels and to the diaphragm. The heart was drawn upwards and to the right, in order to display its posterior surface (facing diaphragmatica). The coronary vessels were dissected out by partial removal of the epicardium (visceral or cardiac pericardium).

Pericardium, Epicardium, Vestigial Fold, Cardiac Veins.



¹ See Appendix, note 124.

² See Appendix, note 125.

³ See Appendix, note 119.

⁴ Called by Macalister the *left marginal vein*.

⁵ Called by Macalister the *anterior interventricular artery and vein*.

⁶ Or junction of the *parietal and visceral pericardium*. (See also note 2 to p. 565.)—Tr.

² See Appendix, note 125.

³ The *right marginal vein*.

⁴ *Vena Oblita Atrii Sinistri (Marshalli)*. See Appendix, note 117.

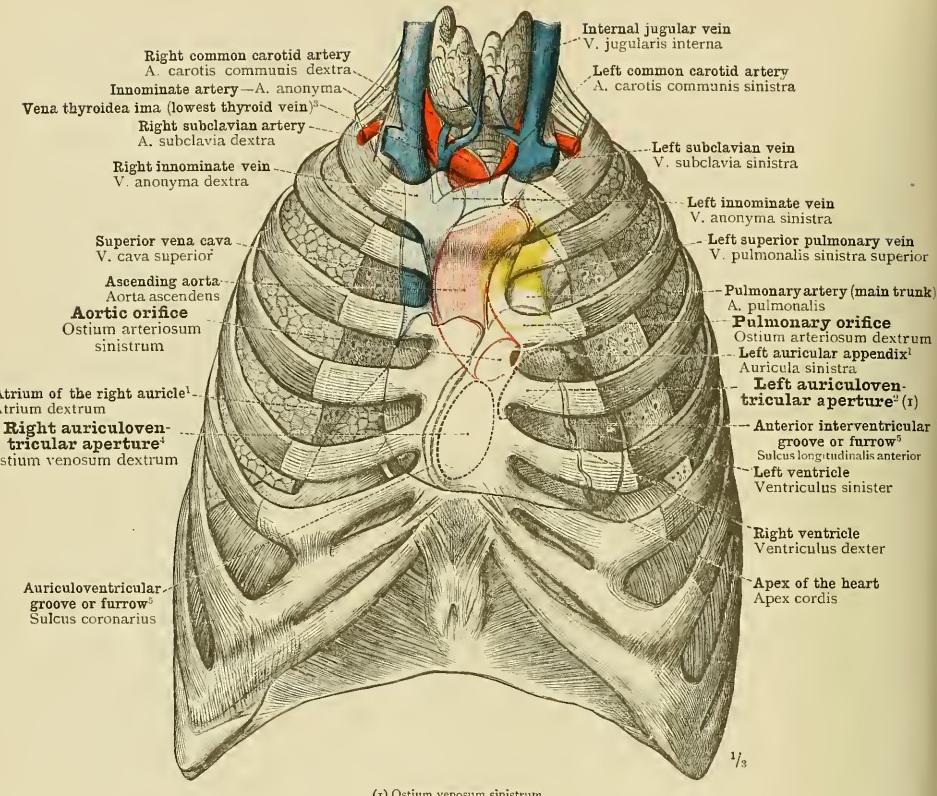
⁵ Called by Macalister the *posterior interventricular vein*.

FIG. 975.—PERSISTENT LEFT SUPERIOR VENA CAVA (VENA CAVA SUPERIOR SINISTRA), AND ITS RELATIONS TO THE CARDIAC VEINS. SEEN FROM BEFORE, BELOW, AND THE LEFT SIDE.

The hemiazygos vein (see note 3 above) opens from behind into the left superior vena cava at the level of the body of the fourth dorsal vertebra. The comparatively slender transverse communicating branch between the right and the left superior vena cava, from which, after the obliteration of the proximal portion of the left superior vena cava, the transverse portion of the left innominate should in the natural course of development have been formed, receives, in addition to others, the inferior thyroid veins.

The thoracic cavity and the pericardium have been opened, and the heart has been drawn upwards and to the right, as in the preparation shown in Fig. 974. By the partial removal of the epicardium (visceral or cardiac pericardium), the left superior vena cava was laid bare in its course along the back of the left auricle and in the auriculoventricular groove, up to its termination in the sinus venosus of the right auricle; and its tributary veins and the branches of the coronary arteries were also dissected out.

Persistent Left Superior Vena Cava.



(i) Ostium venosum sinistrum

1/3

¹ See Appendix, note 113.² Companion to the *thyroidea ima* artery—see note ¹ to p. 590.—Tr.
³ See note 5 to p. 566.² Or *mitral orifice*.⁴ Or *tricuspid orifice*.

FIG. 976.—POSITION OF THE HEART AND THE GREAT VESSELS AND OF THE CARDIAC ORIFICES, AND THE PROJECTION-OUTLINES OF THESE STRUCTURES ON THE ANTERIOR WALL OF THE THORAX.

After preliminary hardening with formalin, the pericardium was exposed in the intercostal spaces. The sternum was then sawn across horizontally at the level of the second and the sixth intercostal spaces, and was removed with a sufficient extent of the attached ribs and rib-cartilages to lay the heart fully bare. The excised portion of the wall of the thorax having been replaced in its position, the preparation was then photographed, first with, and then without, the excised segment, and the projection-outline of the heart was thus determined. By means of suitable incisions, the position and extent of the respective orifices was determined, as well as their projection-outlines upon the anterior surface of the heart. The cartilage of the eighth rib is in this specimen directly attached to the sternum; and the innominate and the left common carotid artery arise from the aorta by a common trunk.

Position and Projection-Outlines of the Heart, the Cardiac Orifices, and the Great Vessels.

ARTERIA PULMONALIS
THE PULMONARY ARTERY

ARTERIÆ TRUNCI
THE ARTERIES OF THE TRUNK

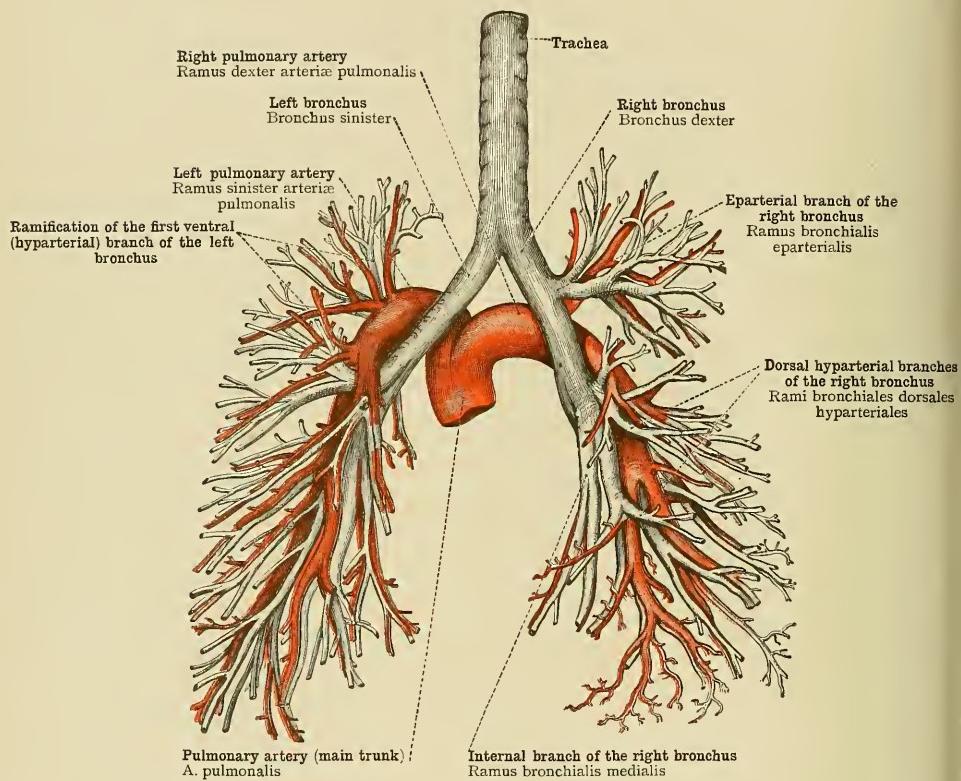


FIG. 977.—THE MAIN TRUNK OF THE PULMONARY ARTERY, ARTERIA PULMONALIS; ITS BIFURCATION INTO THE RIGHT AND THE LEFT PULMONARY ARTERY, RAMUS DEXTER ET RAMUS SINISTER ARTERIÆ PULMONALIS; THE RAMIFICATION OF THE PULMONARY ARTERIES WITHIN THE LUNG, AND THEIR RELATION TO THE BRONCHIAL RAMIFICATION. SEEN FROM BEHIND.

Arteria pulmonalis—The pulmonary artery.

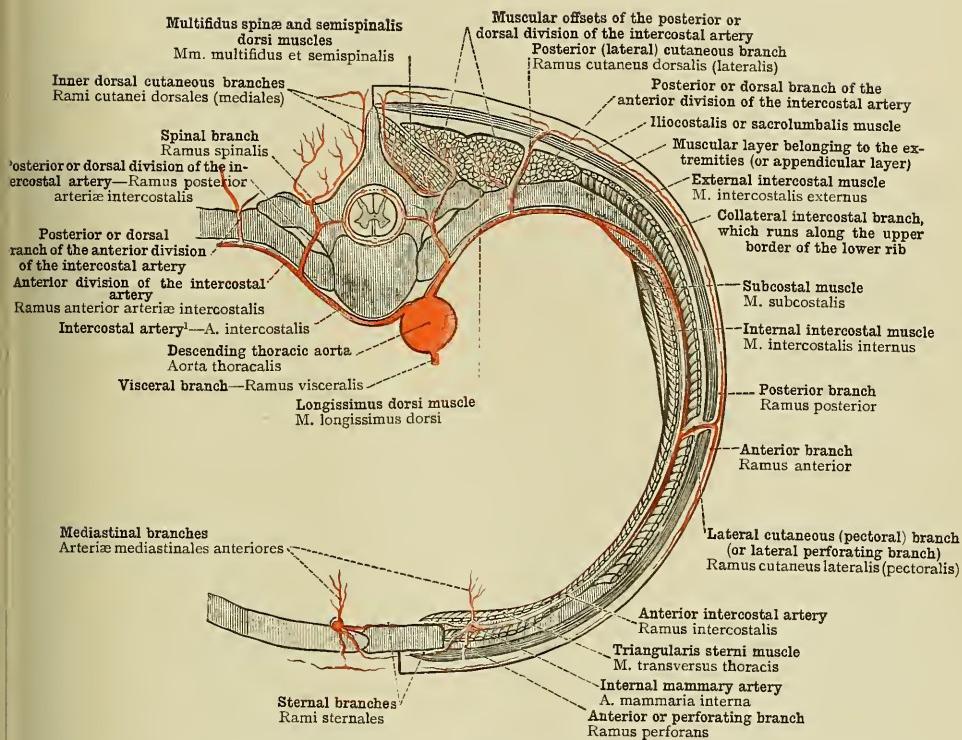
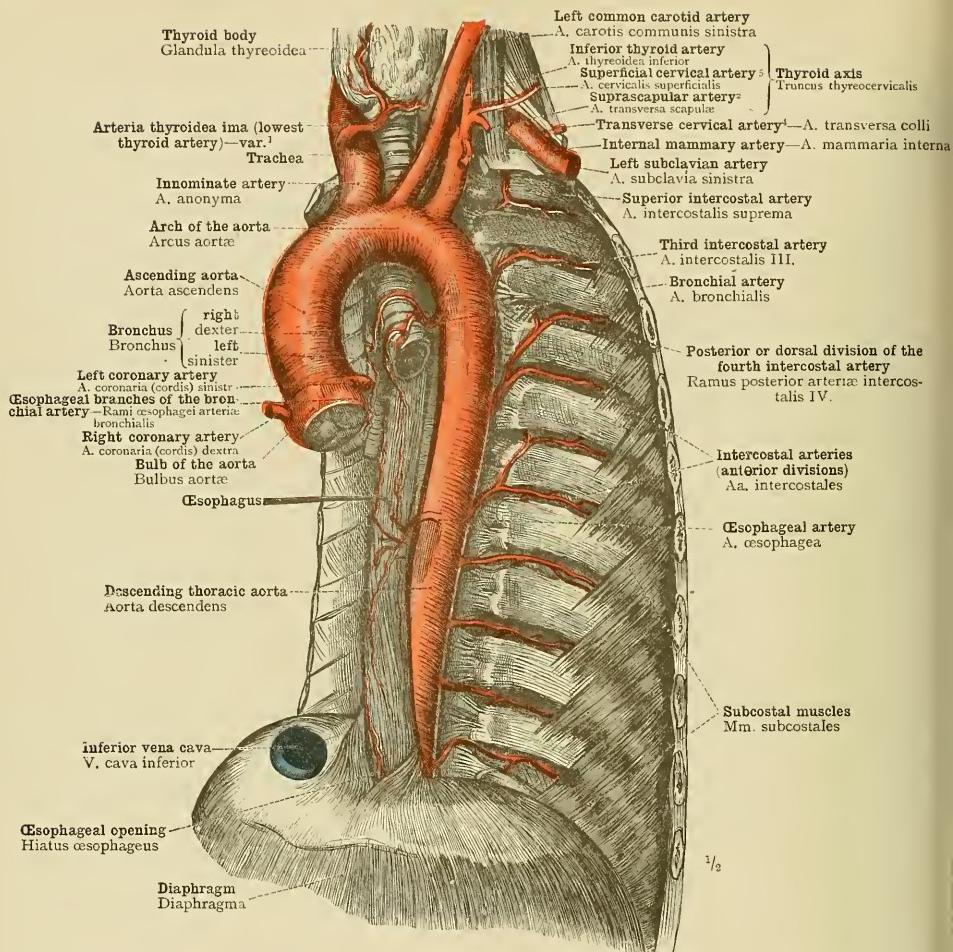


FIG. 978.—DIAGRAMMATIC REPRESENTATION OF THE DISTRIBUTION OF THE ARTERIES SUPPLYING THE BODY-WALL, SHOWN IN A THORACIC SEGMENT.¹

¹ *Intercostal Arteries.*—Quain's description of the distribution of these arteries differs somewhat from that given in the text. The main trunk of the *intercostal artery* runs along the lower border of the upper rib, and ends by anastomosing with one of the anterior intercostal branches of the internal mammary artery. Its branches are (1) *posterior or dorsal* (*ramus posterior*), which gives *spinal*, *muscular*, and *extaneous offsets* (*ramus spinalis*, *rami musculares*, *rami cutanei dorsales mediales*), (2) the *collateral intercostal branch*, which runs across the space between the two lower ribs, and ends by anastomosing with the lower of the two anterior intercostal arteries given to each space by the internal mammary artery. The *ramus dorsalis* of the anterior division is not described by Quain; the *ramus cutaneus* on the "Morphology of the Arterial System," where it is shown to belong to the series of *lateral perforating arteries*.—Tr.



¹ *Arteria Thyroidea Ima (Lowest Thyroid Artery).*—This artery is met with on an average in one body in every ten. It may arise from the innominate trunk (most frequently), from the right common carotid, or from the aorta. In exceptional instances it springs from the internal mammary or from the subclavian artery. Its size is a very variable one, being related inversely to that of the other thyroid arteries. Lying in front of the trachea, this vessel, like the inferior thyroid veins, is endangered in the operation of tracheotomy.—Tr.

² Known also as the *transverse scapular* or *transverse humeral artery*.

³ See note ¹ to p. 569.

⁴ Or *posterior scapular artery* (Macalister). See Appendix, notes 134, 135, 172, 208.

⁵ See Appendix, notes 134, 135, 172, 208.

FIG. 970.—AORTA THORACALIS, THE THORACIC AORTA (CONSISTING OF THE ASCENDING AORTA, THE ARCH OF THE AORTA, AND THE DESCENDING THORACIC AORTA), WITH ITS VISERAL AND PARIELT BRANCHES SEEN FROM THE LEFT SIDE AND BEFORE. BRONCHIAL ARTERIES, ARTERIAE BRONCHIALES. (ESOPHAGEAL ARTERIES, ARTERIAE CESOPHAGÆ. INTERCOSTAL ARTERIES, ARTERIAE INTERCOSTALES, IN ALL THE LEFT INTERCOSTAL SPACES EXCEPT THE UPPERMOST, ARE EXPOSED AS FAR FORWARDS AS THE INTERNAL INTERCOSTAL AND SUBCOSTAL MUSCLES. THEIR DIVISION INTO ANTERIOR AND POSTERIOR BRANCHES (RAMI ANTERIORES ET POSTERIORES) IS SEEN, AND THE ORIGIN OF THE MUSCULAR BRANCHES (RAMI MUSCULARES) OF THE FORMER.

The specimen shows a frequent variety in the origin of the fourth and fifth and of the sixth and seventh intercostal arteries from common roots. The second intercostal artery consists of the distal portion of the superior intercostal artery (arteria intercostalis suprema), which arises from the costocervical axis (truncus costocervicaris—see Appendix, note 177). From the subclavian artery arises the abnormal lowest thyroid artery of Neubauer, arteria thyroidea imma (see note 1 above).

Aorta thoracalis, the thoracic aorta.—Aa. bronchiales et cesophagæ, the bronchial and cesophageal arteries.—Aa. intercostales, the intercostal arteries.

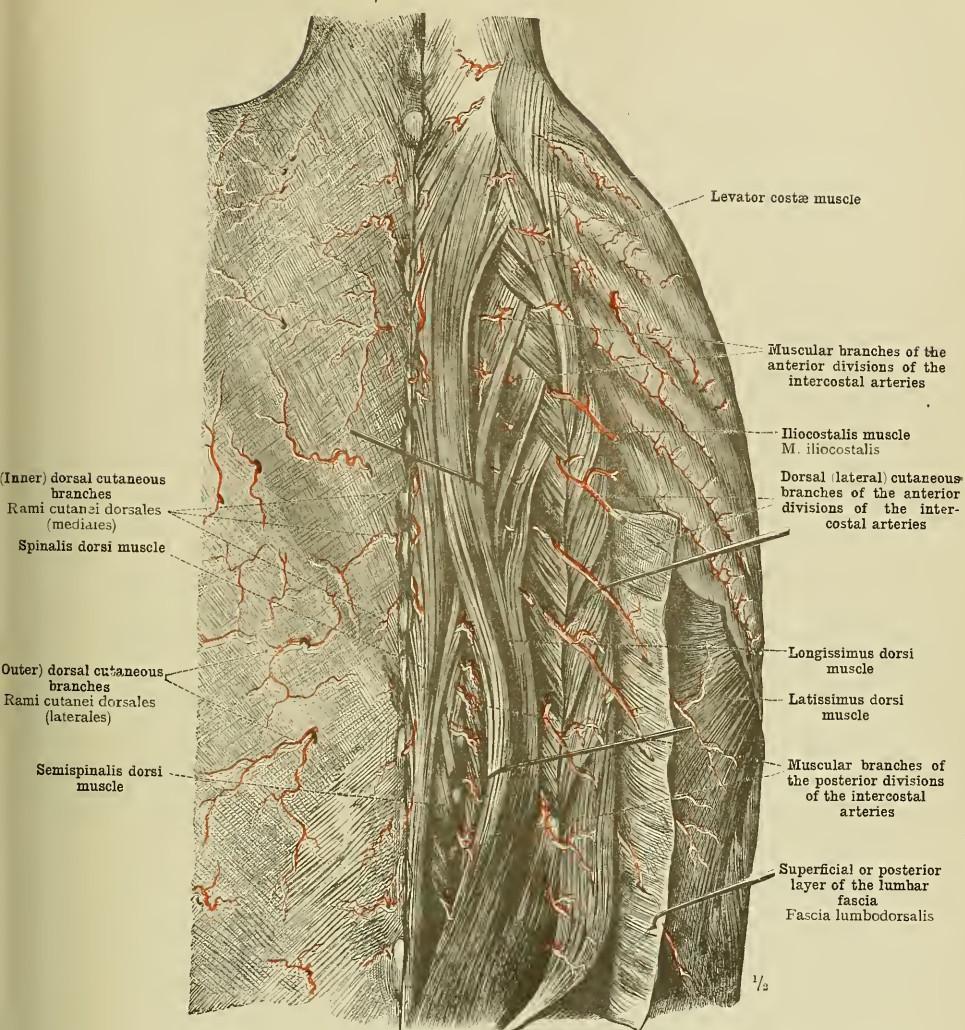


FIG. 980.—RAMIFICATION OF THE POSTERIOR OR DORSAL BRANCHES OF THE INTERCOSTAL ARTERIES IN THE BACK.

On the left side we see the inner and outer cutaneous branches; on the right side, chiefly the muscular branches. On the right side the superficial or posterior layer of the lumbar fascia (by some anatomists termed "the aponeurosis of the latissimus dorsi muscle"—see Part III., Fig. 507, p. 266, Fig. 508, p. 267, and note * to the latter page) has been detached from the spinous processes and turned outwards; the iliocostalis muscle has been drawn outwards; and the longissimus dorsi muscle has been drawn outwards below, inwards above.

RAMI MUSCULARES ET RAMI CUTANEI DORSALES, MEDIALES ET LATERALES; THE INNER AND OUTER MUSCULAR AND CUTANEOUS POSTERIOR OR DORSAL BRANCHES OF THE INTERCOSTAL ARTERIES.

The outer row of branches is derived from the posterior or dorsal branches of the anterior divisions of the intercostal arteries, which divide between the longissimus dorsi and the iliocostalis muscles into inner and outer twigs.

Rami Posterores, Posterior or Dorsal Branches, of the Intercostal Arteries.

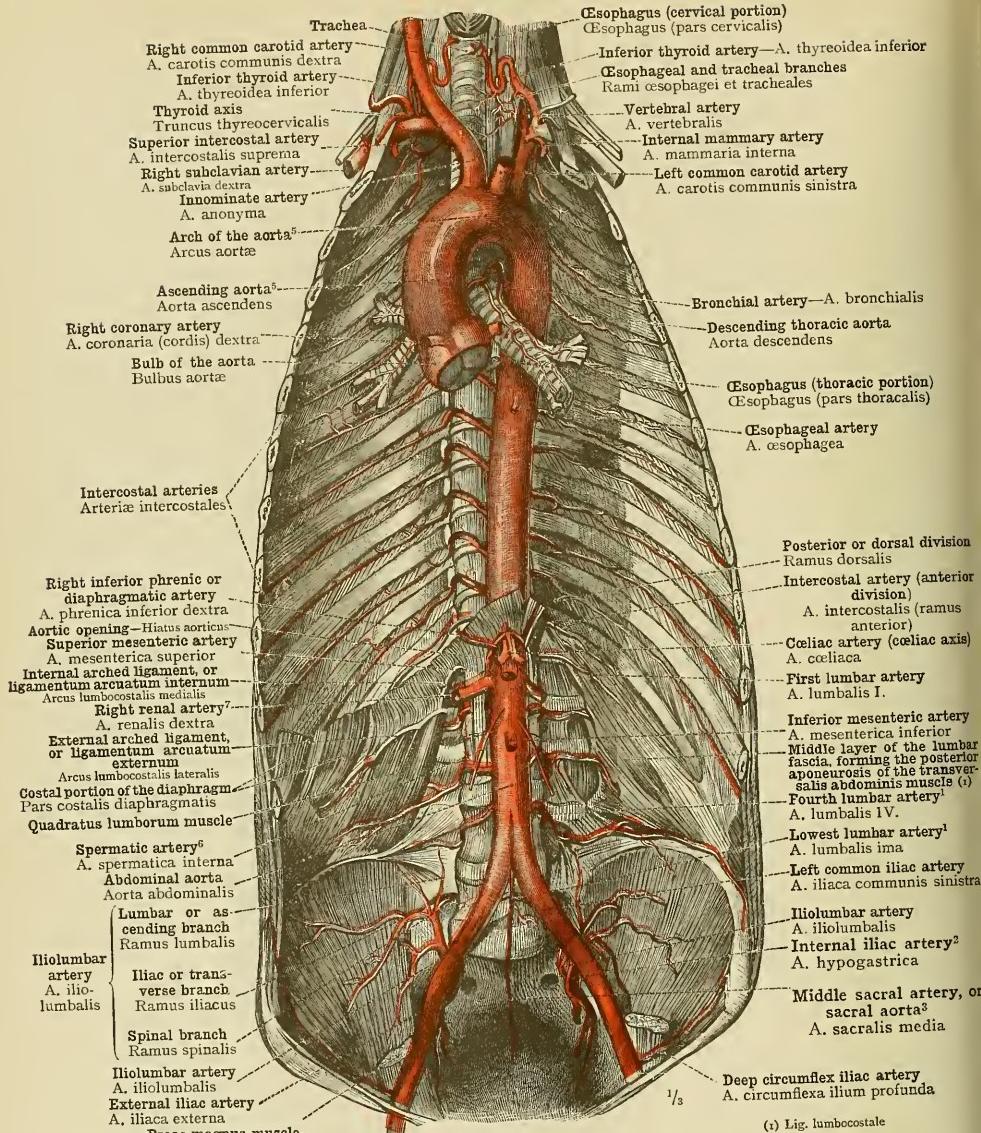


FIG. 981.—PARIETAL BRANCHES OF THE THORACIC AND ABDOMINAL AORTA: THE INTERCOSTAL ARTERIES, THE LUMBAR ARTERIES, AND THE MIDDLE SACRAL ARTERY, OR SACRAL AORTA.

The visceral branches of the aorta, with the exception of the bronchial artery, have been cut away close to their origin.

Arteriae intercostales et lumbales—The intercostal and lumbar arteries.

¹ See Appendix, note 256.

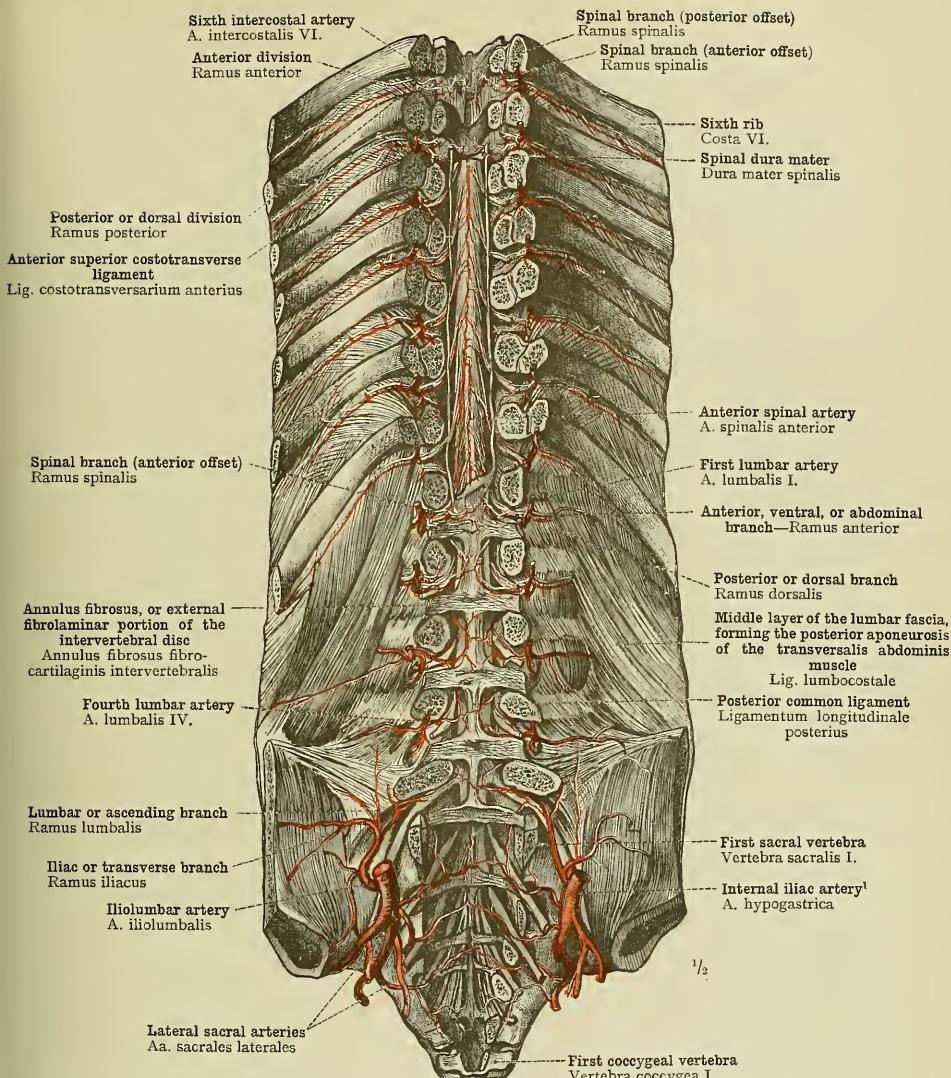
² See Appendix, note 258.

³ See Appendix, note 250.

⁶ See Appendix, note 259.

⁷ See note 3 to p. 595.

⁴ See note 1 to p. 569.

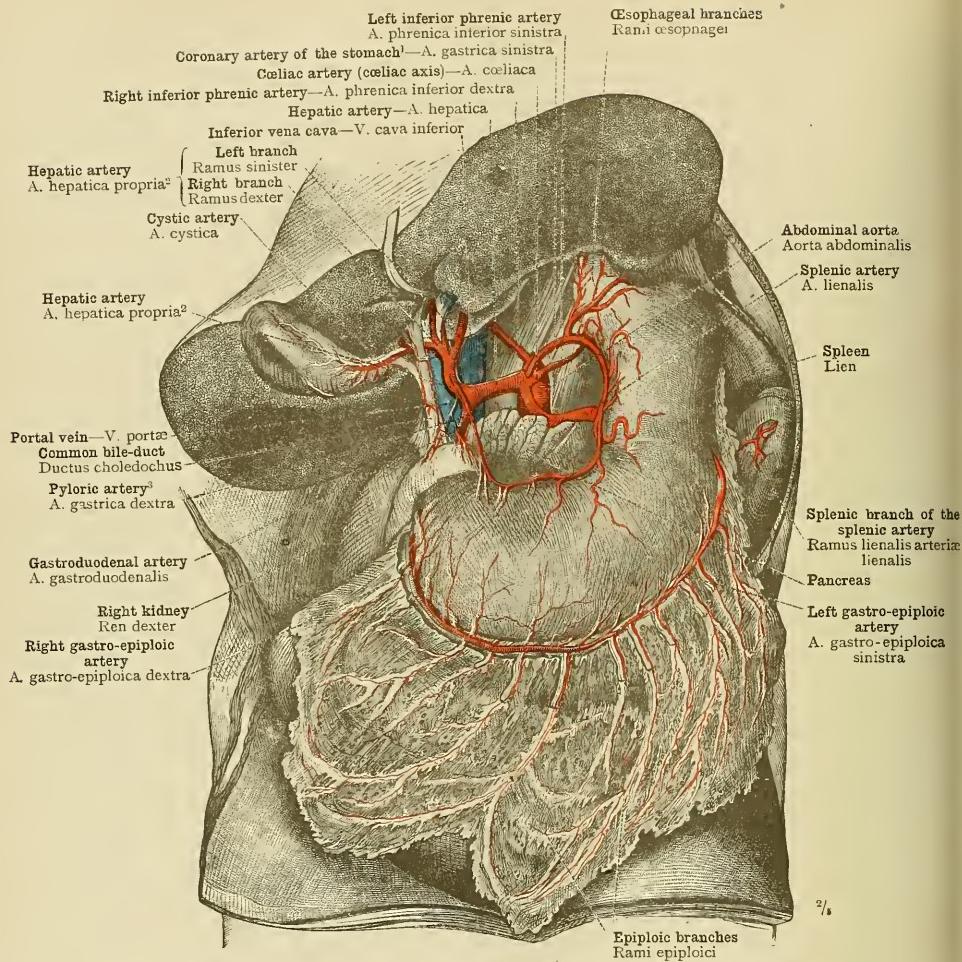


¹ See Appendix, note 120.

FIG. 982.—RAMI SPINALES, THE SPINAL BRANCHES, OF THE INTERCOSTAL, LUMBAR, AND LATERAL SACRAL ARTERIES (ARTERIÆ INTERCOSTALES, LUMBALES, ET SACRALES LATERALES), SEEN FROM BEFORE.

The spinal canal and the intervertebral foramina have been opened by the removal of the vertebral bodies or centra. Down to the eighth dorsal vertebra, the spinal cord and the dura mater have been removed; from the eighth dorsal to the first lumbar vertebra, the spinal cord has been laid bare by the removal of the dura mater; below the first lumbar vertebra the posterior common ligament and the hindmost portions of the intervertebral discs have been left intact.

The Arteries of the Spinal Canal.



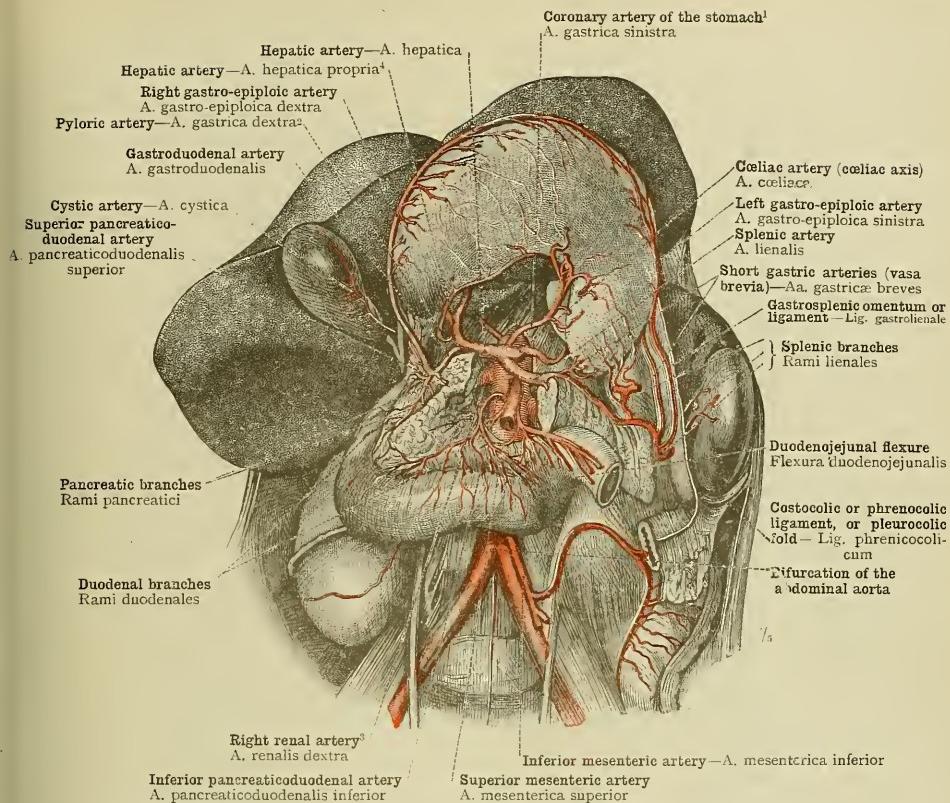
¹ Called by Macalister the *gastric artery*.

² See Appendix, note 130.

³ See Appendix, note 131.

FIG. 903.—THE DIVISION INTO THREE BRANCHES OF THE CELIAC ARTERY OR CELIAC AXIS (ARTERIA CELIACA, TRIPUS CELIACUS HALLERI) DISPLAYED FROM BEFORE BY THE REMOVAL OF THE SMALL OR GASTROHEPATIC OMENTUM. THESE BRANCHES ARE: THE CORONARY ARTERY OF THE STOMACH (ARTERIA GASTRICA SINISTRA—GASTRIC ARTERY, ACCORDING TO MACALISTER); THE SPLENIC ARTERY (ARTERIA SPLENICA); AND THE HEPATIC ARTERY (ARTERIA HEPATICA), WHICH DIVIDES INTO THE GASTRODUODENAL ARTERY AND THE *ARTERIA HEPATICA PROPRIA, THE LATTER GIVING OFF THE PYLORIC ARTERY (ARTERIA GASTRICA DEXTRA—SUPERIOR PYLORIC ARTERY, ACCORDING TO MACALISTER), AND THEN DIVIDING INTO LEFT AND RIGHT HEPATIC ARTERIES (see Appendix, note 130). THE CYSTIC ARTERY IS DERIVED FROM THE RIGHT HEPATIC ARTERY; THE RIGHT GASTRO-EPIPLOIC ARTERY FROM THE GASTRODUODENAL ARTERY; AND THE LEFT GASTRO-EPIPLOIC ARTERY FROM THE SPLENIC ARTERY. IN THE GREAT OMENTUM, WHICH IS SPREAD OUT FLAT, ARE SEEN THE EPIPLOIC BRANCHES OF THE GASTRO-EPIPLOIC ARTERIES. IN THE *HEPATODUODENAL LIGAMENT (part of the small or gastrohepatic omentum—see Appendix to Part IV., note 42) WE OBSERVE THE MUTUAL RELATIONS OF THE HEPATIC ARTERY, THE PORTAL VEIN, AND THE COMMON BILE-DUCT. THE LEFT INFERIOR PHRENIC ARTERY IS IN THIS SPECIMEN DERIVED FROM THE CELIAC AXIS (A COMMON VARIETY).

The Asymmetrical Visceral Branches of the Abdominal Aorta.

¹ Called by Macalister the *gastric artery*.² Called by Macalister the *superior pyloric artery*—see Appendix, note 132.³ The *renal arteries* are sometimes known as the *emulgent arteries*, but the term is now rarely used. The name is derived from the function of the organs they supply (*emulgea*, I milk or drain out).—Tr.

⁴ See Appendix, note 132.

FIG. 984.—THE DISTRIBUTION OF THE BRANCHES OF THE CELIAC ARTERY OR CELIAC AXIS (ARTERIA CELIACA, TRIPUS CELIACUS HALLERI), SEEN FROM BEFORE: THE SPLEEN, RAMI PANCREATICI ET LIENALES; THE SHORT GaSTRIC ARTERIES (VASA BREVIA), ARTERIAE GASTRICÆ BREVES; THE LEFT GASTRO-EPIPLOIC ARTERY, ARTERIA GASTRO-EPIPLOICA SINISTRA, AND ITS ANASTOMOSIS WITH THE RIGHT GASTRO-EPIPLOIC ARTERY, ARTERIA GASTRO-EPIPLOICA DEXTRA; THE BIFURCATION OF THE GASTRODUODENAL ARTERY, ARTERIA GASTRODUODENALIS; THE PANCREATIC AND DUODENAL OFFSETS, RAMI PANCREATICI ET DUODENALES, OF THE SUPERIOR AND INFERIOR PANCREATICODUODENAL ARTERIES, ARTERIAE PANCREATICODUODENALES, SUPERIOR ET INFERIOR.

In the preparation shown in Fig. 983, the liver was drawn upwards as far as possible, and the stomach also turned up. The duodenum and the pancreas were laid bare. By the removal of a portion of the body of the pancreas, the abdominal aorta with the origin of the two renal arteries and the superior mesenteric artery was exposed. The great or gastrocolic omentum was removed, except the gastrosplenic omentum or ligament, which was left intact.

The Asymmetrical Visceral Branches of the Abdominal Aorta.

Inferior pancreaticoduodenal artery

A. pancreaticoduodenalis inferior

Middle colic artery—A. colica media

Superior mesenteric artery

A. mesenterica superior

Superior pancreaticoduodenal artery

A. pancreaticoduodenalis superior

Duodenojejunal flexure—Flexura duodenoejunalis

Upper (ascending) branch of the left colic artery, inosculating with the left branch of the middle colic artery

Right colic artery

A. colica dextra

Jejunal arteries¹
Aa. jejunales

Ileocolic artery

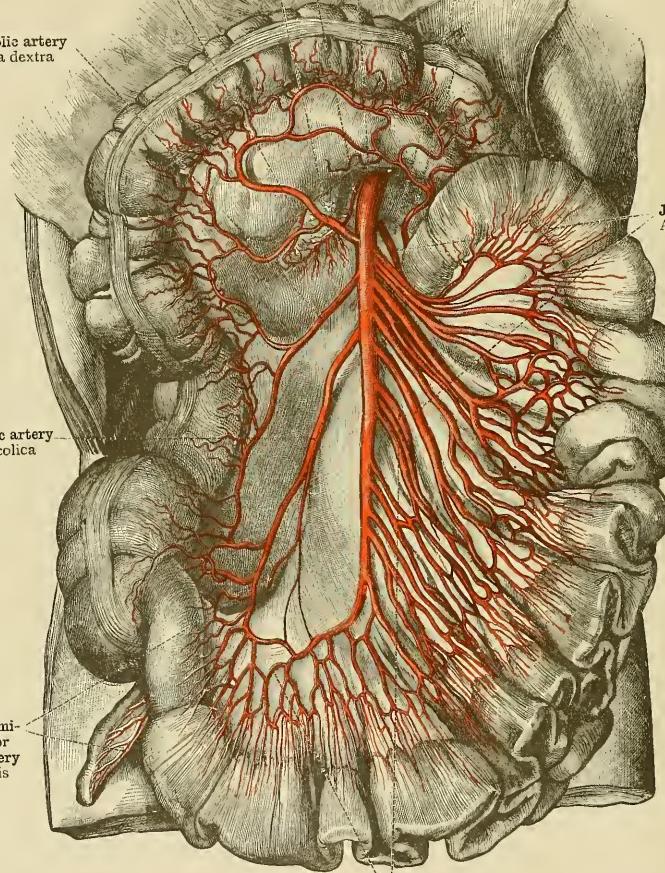
A. ileocolica

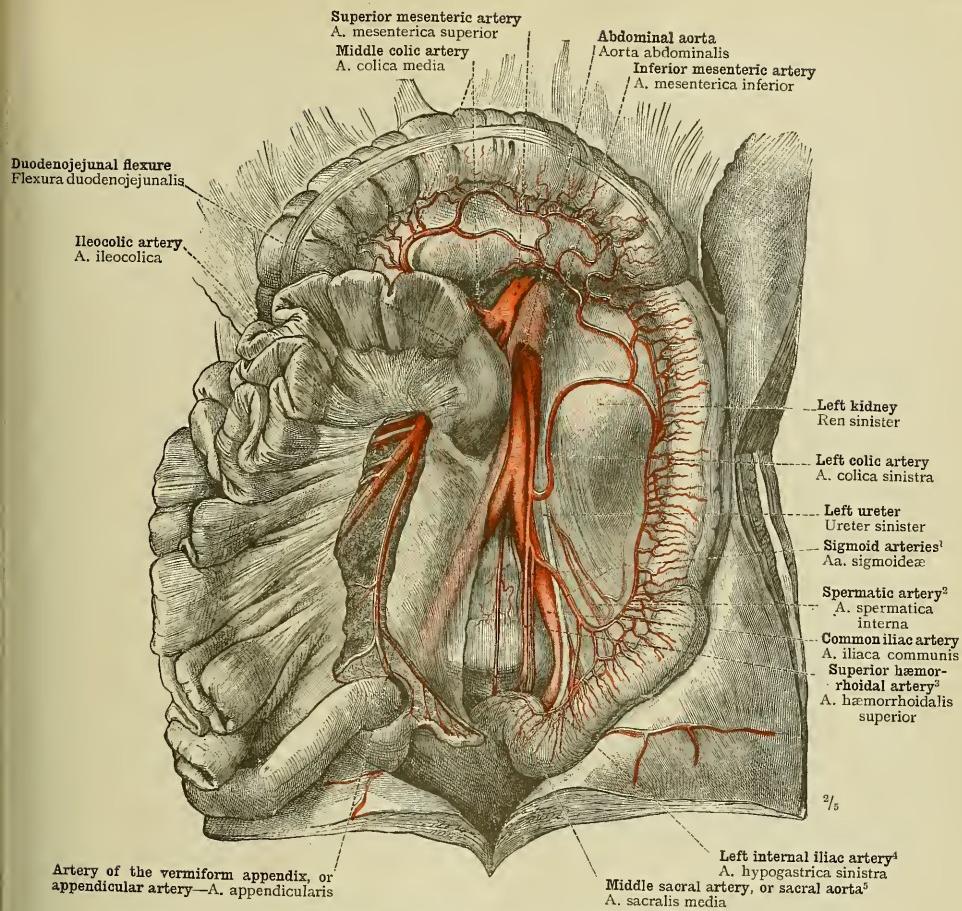
Artery of the vermi-
form appendix, or
appendicular artery
A. appendicularisIliac arteries¹—Aa. ilae² Jejunal and Iliac Arteries.—Quain calls these indifferently the *intestinal branches* of the superior mesenteric artery; but Macalister, like Toldt, classifies the upper half as *jejunal*, and the lower half as *iliac arteries*.—Tr.

FIG. 985.—THE DISTRIBUTION OF THE SUPERIOR MESENTERIC ARTERY, ARTERIA MESENTERICA SUPERIOR. THE INTESTINAL ARTERIES, ARTERIE INTESTINALES. SUPERIOR PANCREATICODUODENAL ARTERY, ARTERIA PANCREATICODUODENALIS SUPERIOR: JEJUNAL AND ILIAC ARTERIES, ARTERIE JEJUNALES ET ILLACE; ILEO-COLIC ARTERY, ARTERIA ILEOCOLICA, GIVING OFF THE ARTERY OF THE VERMIFORM APPENDIX OR APPENDICULAR ARTERY, ARTERIA APPENDICULARIS; THE RIGHT COLIC ARTERY, ARTERIA COLICA DEXTRA; THE MIDDLE COLIC ARTERY, ARTERIA COLICA MEDIA.

The jejunum and ileum with their mesentery have been drawn to the left side; the colon and the transverse mesocolon have been drawn upwards.

The Asymmetrical Visceral Branches of the Abdominal Aorta.





¹ *Sigmoid Artery.*—This branch of the inferior mesenteric artery is described as normally single. Two sigmoid arteries, as in the specimen figured above, are, however, of quite frequent occurrence ; and in some instances as many as three may be met with.—Tr.
² See Appendix, note 129.
³ Called by Macalister the *superior rectal artery*.
⁴ See Appendix, note 120.

FIG. 986.—THE DISTRIBUTION OF THE INFERIOR MESENTERIC ARTERY, ARTERIA MESENTERICA INFERIOR: THE LEFT COLIC ARTERY, ARTERIA COLICA SINISTRA, AND ITS INOSCULATION WITH THE MIDDLE COLIC ARTERY, ARTERIA COLICA MEDIA; THE SIGMOID ARTERIES, ARTERIAE SIGMOIDEÆ, AND THE SUPERIOR HÆMORRHOIDAL (OR SUPERIOR RECTAL) ARTERY, ARTERIA HÆMORRHOIDALIS SUPERIOR. THE ILEOCOLIC ARTERY, ARTERIA ILEOCOLICA, DERIVED FROM THE SUPERIOR MESENTERIC ARTERY, AND SUPPLYING THE ARTERY OF THE VERMICIFORM APPENDIX OR APPENDICULAR ARTERY, ARTERIA APPENDICULARIS.

In the preparation shown in Fig. 985, the colon and the transverse mesocolon were drawn upwards ; the jejunum and ileum with their mesentery to the left. By cutting through the left peritoneal layer of the mesentery of the small intestine, the ileocolic artery was exposed, and its offset to the vermiciform appendix (appendicular artery) was traced to its destination.

The Asymmetrical Visceral Branches of the Abdominal Aorta.

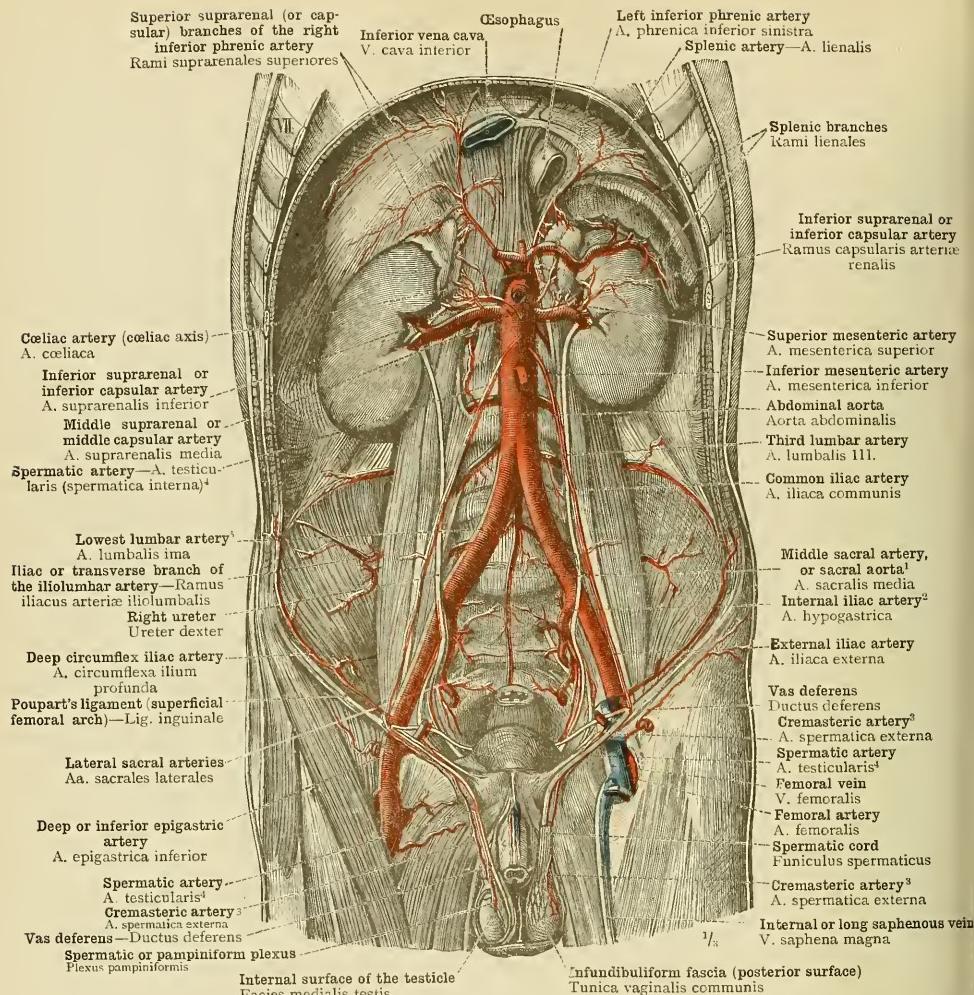
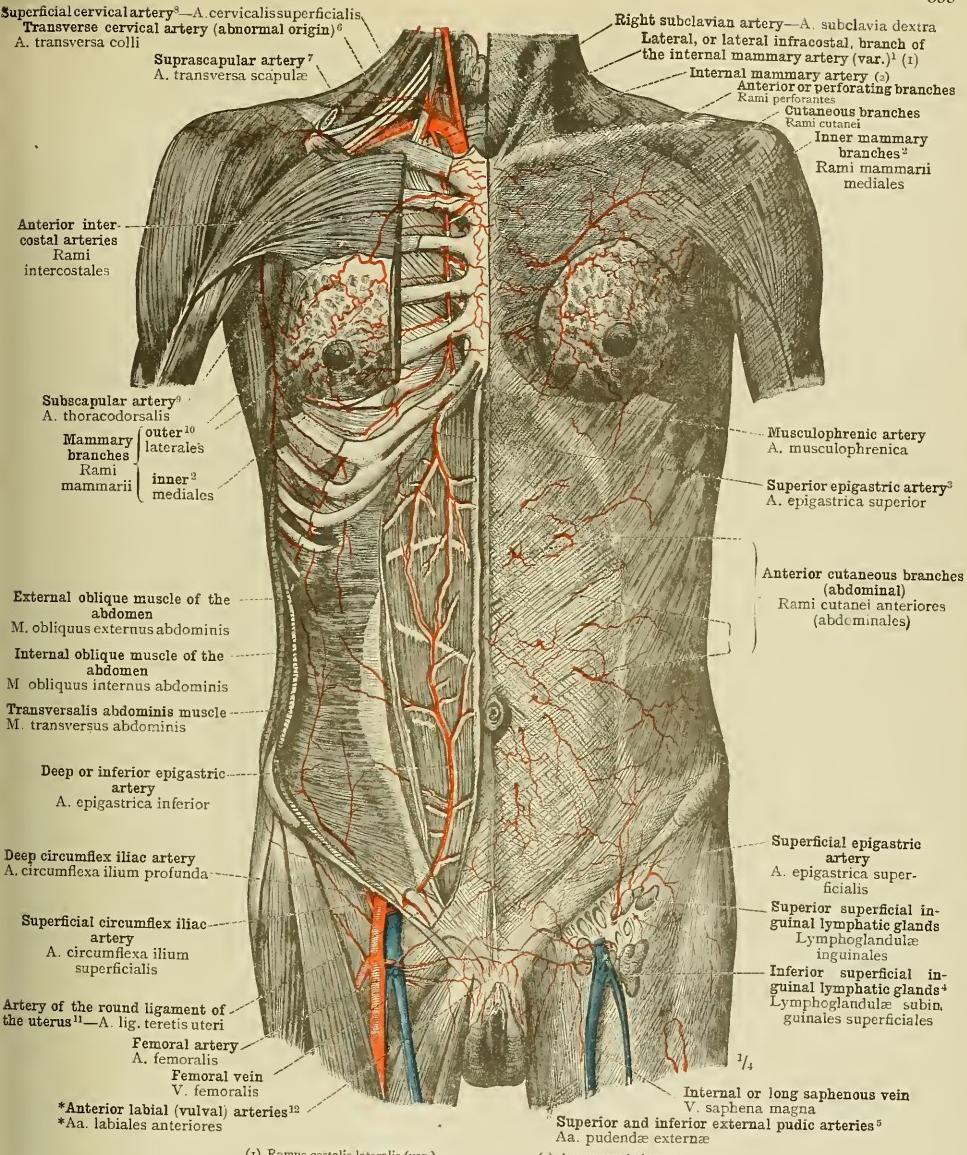


FIG. 987.—THE PARIENTAL BRANCHES AND THE SYMMETRICAL (PAIRED) VISCERAL BRANCHES OF THE ABDOMINAL AORTA: THE INFERIOR PHRENIC OR INFERIOR DIAPHRAGMATIC ARTERIES AND THE LUMBAR ARTERIES; THE MIDDLE SACRAL ARTERY, OR SACRAL AORTA, AND THE LATERAL SACRAL ARTERIES; THE SPLENIC ARTERIES; THE RENAL OR EMULGENT ARTERIES (see note ³ to p. 595), AND THE SUPRARENAL OR CAPSULAR ARTERIES; THE SPERMATIC ARTERIES (ARTERIE TESTICULARES ET ARTERIE SPERMATICA INTERNÆ), AND THE CREMASTERIC ARTERIES (ARTERIE SPERMATICA EXTERNÆ) see Appendix, note 129.

The abdominal viscera were removed, with the exception of the spleen, the kidneys, and the suprarenal capsules (adrenals). After removing the anterior half of the scrotum, the internal surface of the right testicle was laid bare by the removal of its coverings, in order to display the entrance of the spermatic artery into the gland; the left testicle was rotated inwards, in order to show the terminal ramification of the cremasteric artery on the infundibuliform fascia, and between the fasciculi of the cremaster muscle.

The Parietal Branches and the Symmetrical (Paired) Visceral Branches of the Abdominal Aorta.



* See Appendix, note 132.

† Also called the *abdominal* branch of the internal mammary artery.‡ The upper of these is named by Macalister the *superior* or *superficial pubic*; the lower, the *inferior* or *deep pubic*.—Tr.

§ See Appendix, note 134.

** See Appendix, note 135.

†† This branch of the inferior or deep epigastric artery is the homologue in the female of the *cremasteric artery* of the male.—Tr.

‡‡ See Appendix, note 137.

* See Appendix, note 133.

† Often called the *femoral lymphatic glands*.‡ Called also the *transverse scapular* or *transverse humeral artery*.

§ See Appendix, note 136.

** See Appendix, note 137.

FIG. 988.—ON THE LEFT SIDE OF THE BODY THE SUPERFICIAL ARTERIES ARE SHOWN; ON THE RIGHT SIDE IN THE INTERCOSTAL SPACES THE INTERNAL MAMMARY ARTERY AND ITS MUSCULOPHRENIC BRANCH (ARTERIAE MAMMARIA INTERNAE ET MUSCULOPHRENICA) ARE EXPOSED, ALSO, BY PARTIAL REMOVAL OF THE RECTUS ABDOMINIS MUSCLE, THE SUPERIOR EPIGASTRIC ARTERY AND THE INFERIOR OR DEEP EPIGASTRIC ARTERY (ARTERIE EPIGASTRICÆ, SUPERIOR ET INFERIOR).

The Arteries of the Anterior Wall of the Trunk.

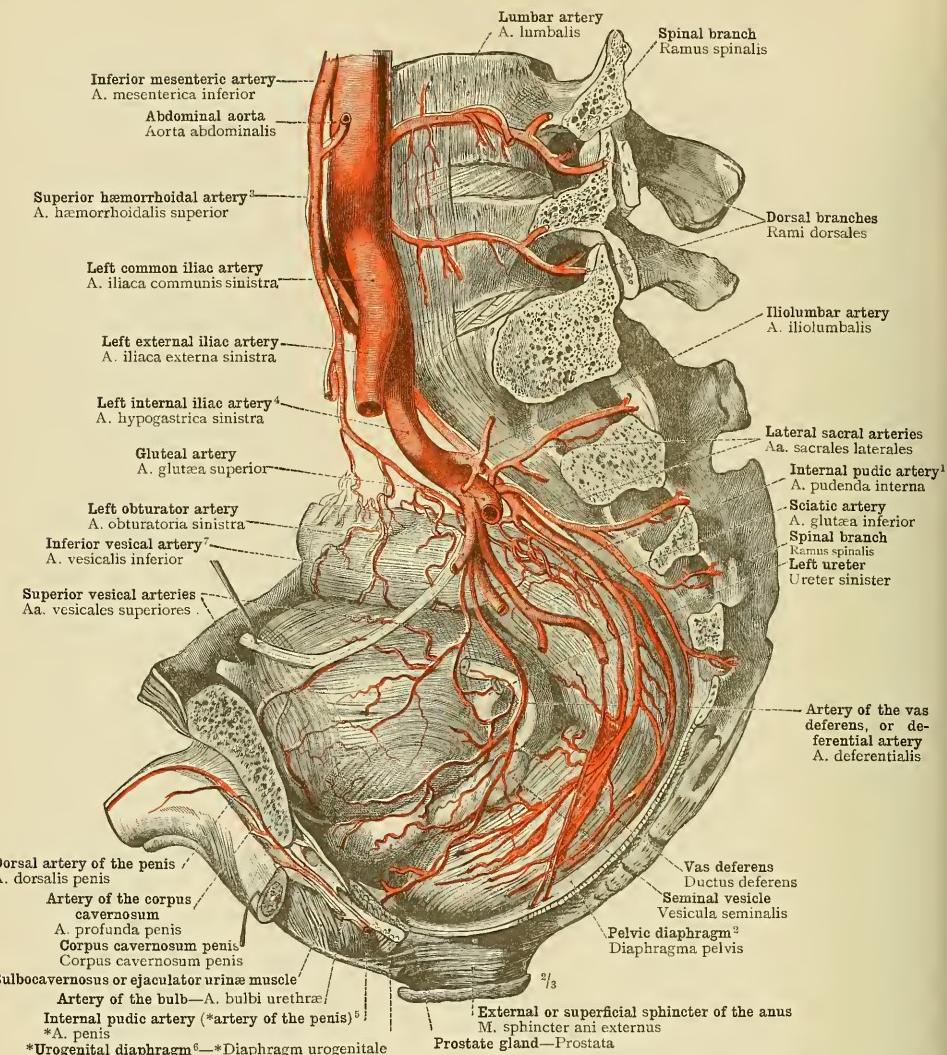


FIG. 989.—THE VISCERAL BRANCHES, RAMI VISCERALES, OF THE INTERNAL ILIAC ARTERY, ARTERIA HYPOGASTRICA (see Appendix, note 120), AS SEEN ON THE LEFT SIDE OF THE MALE PELVIS.

The left innominate bone was sawn through close to the pubic symphysis, and was removed together with the left part of the sacrum; a small part of the left side of the pelvic diaphragm (see Appendix, note 140) was preserved, and was drawn down a little towards the perineum. Further, by the removal of the transverse processes of the fourth and fifth lumbar vertebrae, the dorsal branches of the two lowest lumbar arteries and the lateral sacral arteries were displayed, and their spinal branches (rami spinales) were traced to their entrance into the spinal canal.

The Arteries of the Male Pelvic Viscera.

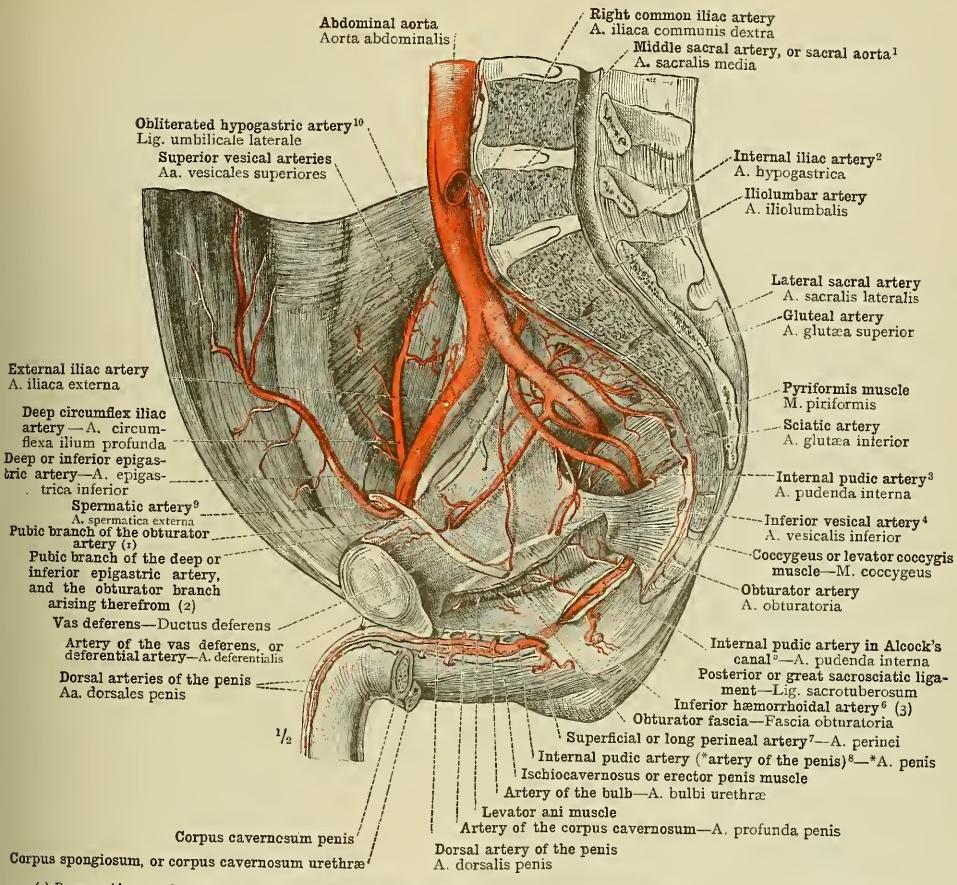
¹ See Appendix, note 139.

⁴ See Appendix, note 120.

² See Appendix, note 140.
⁵ See Appendix, note 141.

³ Called by Macalister the *superior rectal artery*.
⁶ See Appendix, note 142.

⁷ See Appendix, note 143.



(i) Ramus pubicus arteriae obturatoriae

(e) Ramus pubicus et ramus obturatorius arterie epigastricae inferioris

(3) A. haemorrhoidalis inferior

¹ See Appendix, note 12^a.⁴ See Appendix, note 144.⁷ See Appendix, note 147.¹⁰ See Appendix, note 147.² See Appendix, note 120.⁵ See Appendix, note 145.⁸ See Appendix, note 144.³ See Appendix, note 120.⁶ See Appendix, note 146.⁹ See Appendix, note 120.

FIG. 990.—THE PARIETAL BRANCHES, RAMI PARIETALES, OF THE INTERNAL ILIAC ARTERY, ARTERIA HYPOGASTRICA (see Appendix, note 12^b) : ARTERIA ILIOLUMBALIS, THE ILIOLUMBAR ARTERY; ARTERIA SACRALIS LATERALIS ET ARTERIA SACRALIS MEDIA, THE LATERAL SACRAL ARTERY AND THE MIDDLE SACRAL ARTERY (OR SACRAL AORTA—see Appendix, note 12^c) ; ARTERIA GLUTEA SUPERIOR ET ARTERIA GLUTEA INFERIOR, THE GLUTEAL ARTERY AND THE SCIATIC ARTERY; ARTERIA OBTURATORIA, THE OBTURATOR ARTERY, AND THE ANASTOMOSIS OF ITS PUBIC BRANCH (RAMUS PUBICUS) WITH THE OBTURATOR BRANCH (RAMUS OBTURATORIUS) OF THE DEEP OR INFERIOR EPIGASTRIC ARTERY (ARTERIA EPIGASTRICA INFERIOR). ARTERIA CIRCUMFLEXA ILLUM PROFUNDA, THE DEEP CIRCUMFLEX ILIAC ARTERY; ARTERIA EPIGASTRICA INFERIOR, THE DEEP OR INFERIOR EPIGASTRIC ARTERY, WITH THE SPERMATIC ARTERY (ARTERIA SPERMATICA EXTERNA—see Appendix, note 12^d) AND THE ARTERY OF THE VAS DEFERENS OR DIFFERENTIAL ARTERY (ARTERIA DEFERENTIALIS). THE COURSE OF THE INTERNAL PUBIC ARTERY (ARTERIA PUDENDA INTERNA), AND THE ORIGIN OF THE BRANCHES TO THE EXTERNAL GENITAL ORGANS (see Appendix, notes 13^e, 14^f, 14^g, and 14^h).

In the preparation shown in Fig. 989, the pelvic viscera and the remains of the left half of the pelvis were removed; the levator ani muscle was turned upwards, and beneath this muscle the outer layer of the obturator fascia was removed to display the internal pudic artery in Alcock's canal (see Appendix, note 145). The bulb of the urethra and the left crus of the penis were removed, to show the entrance of the artery of the corpus cavernosum (arteria profunda penis) into the structure which it supplies, and the course of the dorsal artery of the penis (arteria dorsalis penis) on to the dorsum of the penis.

The Arteries of the Lateral Wall of the Pelvis and of the External Genital Organs.

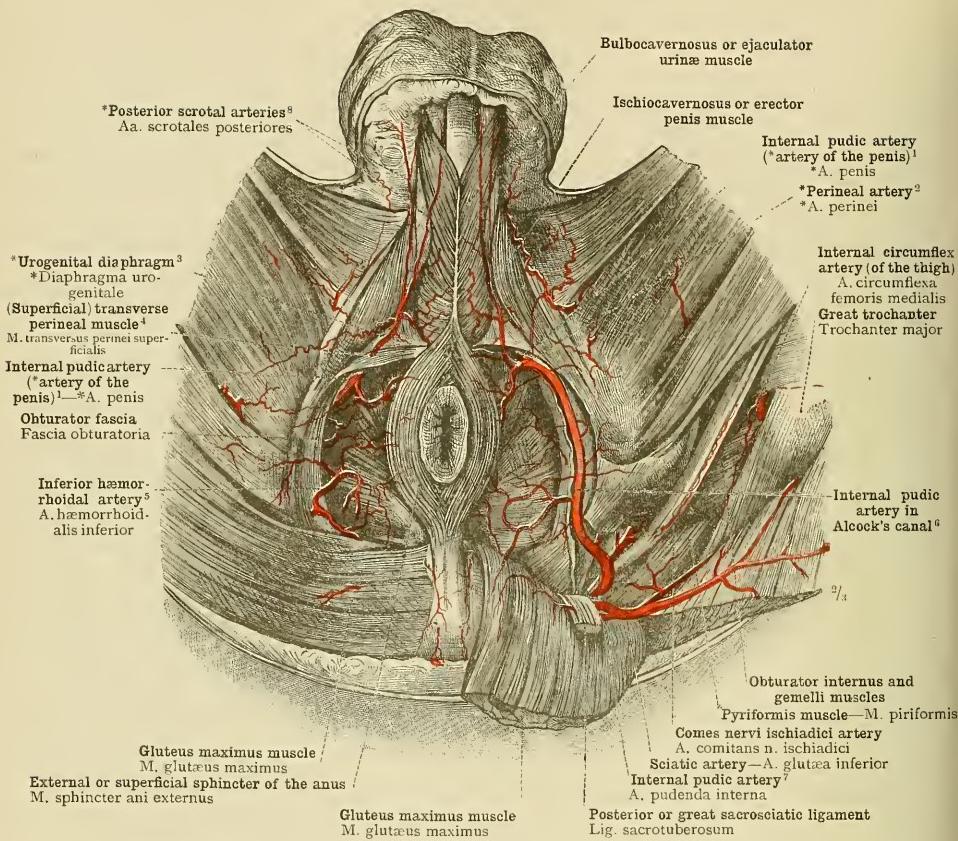


FIG. 991.—THE COURSE AND DISTRIBUTION OF THE INTERNAL PUDIC ARTERY (ARTERIA PUDENDA INTERNA) IN THE MALE PERINEAL REGION: THE INFERIOR OR EXTERNAL HEMORRHOIDAL ARTERY (ANAL ARTERY, ACCORDING TO MACALISTER), ARTERIA HÆMORRHOIDALIS INFERIOR, AND THE *PERINEAL ARTERY (i.e., TRANSVERSE PERINEAL AND SUPERFICIAL OR LONG PERINEAL ARTERIES—*see Appendix*, notes 147 and 149), ARTERIA PERINEI, WITH THE TERMINATION OF THE SUPERFICIAL OR LONG PERINEAL ARTERY BY ITS DIVISION INTO THE TWO POSTERIOR SCROTAL ARTERIES, ARTERIÆ SCROTALES POSTERIORES (*see Appendix*, note 138).

On the left side of the body, the course of the internal pudic artery (arteria pudenda interna) is shown from its emergence from the pelvis through the great sacrosciatic foramen until it penetrates the base of the triangular ligament of the urethra (in the author's terminology, up to its entrance into the *urogenital diaphragm—*see Appendix*, note 142); the gluteus maximus muscle has been partially divided by an incision passing upwards from its lower border and has been turned upwards, the great sacrosciatic ligament has been divided, Alcock's canal has been opened (*see Appendix*, note 151), and the (superficial) transverse muscle of the perineum has been entirely removed.

The Arteries of the Male Perineal Region.

¹ See Appendix, note 141.
² See note 1 to p. 527 in Part IV.
³ See Appendix, note 139.

⁴ See Appendix, note 149.
⁵ See Appendix, note 150.
⁶ See Appendix, note 139.

⁷ See Appendix, note 142.
⁸ See Appendix, note 151.

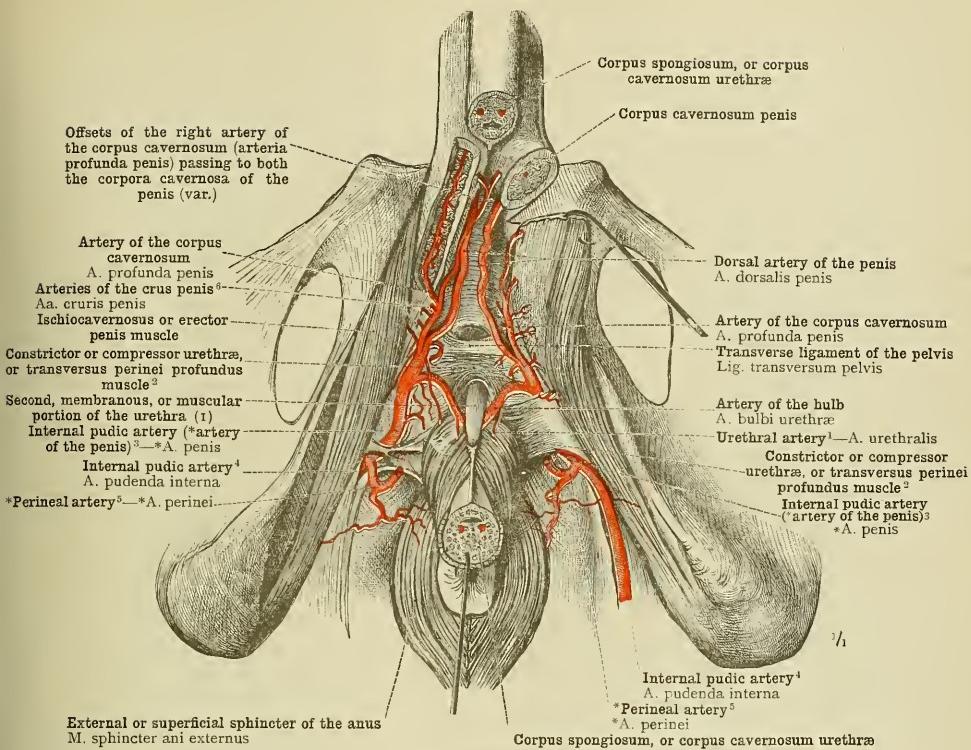


FIG. 992.—THE TERMINAL BIFURCATION OF THE INTERNAL PUDIC ARTERY (*ARTERY OF THE PENIS, ACCORDING TO TOLDT—see Appendix, note ¹⁴¹) INTO THE ARTERY OF THE CORPUS CAVERNOSUM (ARTERIA PROFUNDA PENIS) AND THE DORSAL ARTERY OF THE PENIS (ARTERIA DORSALIS PENIS). PRIOR TO THE BIFURCATION, THE FOLLOWING DEEP BRANCHES ARE SUPPLIED: ARTERIA BULBI URETHRAE, THE ARTERY OF THE BULB; ARTERIA URETHRALIS, THE URETHRAL ARTERY; ARTERIE CRURIS PENIS, THE ARTERIES OF THE CRUS PENIS.

On the left side of the body, the superficial layer of the obturator fascia where it covers the internal pudic artery in the ischiorectal fossa has been removed throughout the whole length of Alcock's canal (see Appendix, note ¹⁴⁵), so that the artery is exposed up to its disappearance between the layers of the constrictor or compressor urethrae or transversus perinei profundus muscle; on the right side of the body, by the removal of the superficial fibres of that muscle, the artery is exposed in the anterior half of the perineum (called by the author in this part of its course the *artery of the penis, *arteria penis—see Appendix, note ¹⁴¹). The corpus spongiosum, or corpus cavernosum urethrae, has been divided transversely in front of the pubic symphysis, the bulb of the urethra has been separated from the *urogenital diaphragm (see Appendix, note ¹⁴²) and turned backwards, in order to show the artery of the bulb entering the dorsal (deep) surface of the bulb. The left crus of the penis has been divided transversely and drawn a little outwards, to display more fully the entrance of the branches of the artery of the corpus cavernosum. On the right side the corresponding artery has been traced for some distance within the substance of the corpus cavernosum. Before entering the corpus cavernosum this (right) artery gives an offset which bifurcates in the angle between the two corpora cavernosa, the two branches entering the right and the left corpus cavernosum, respectively.

The Arteries of the Male Perineal Region.

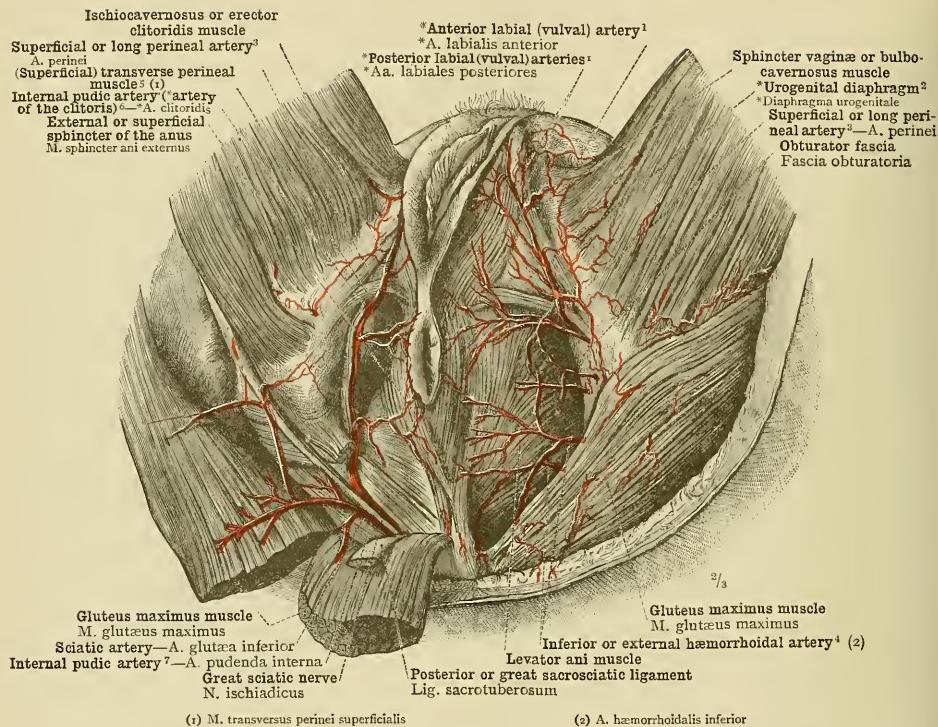


FIG. 993.—THE SUPERFICIAL BRANCHES OF THE INTERNAL PUDIC ARTERY, ARTERIA PUDENDA INTERNA, IN THE FEMALE PERINEAL REGION: THE INFERIOR OR EXTERNAL HÆMORRHOIDAL ARTERY (ANAL ARTERY, ACCORDING TO MACALISTER), ARTERIA HÆMORRHOIDALIS INFERIOR, AND THE *PERINEAL ARTERY (*i.e.*, TRANSVERSE PERINEAL ARTERY AND SUPERFICIAL OR LONG PERINEAL ARTERY—see Appendix, notes ¹⁴⁷, ¹⁴⁹, and ¹⁵⁵), ARTERIA PERINEI, WITH THE TERMINATION OF THE SUPERFICIAL OR LONG PERINEAL ARTERY BY ITS DIVISION INTO THE POSTERIOR LABIAL ARTERIES, ARTERIÆ LABIALES POSTERIORES (see Appendix, note ¹³⁸).

On the right side of the body the gluteus maximus muscle was partially divided by an incision passing upwards from its lower border, and was turned upwards; the posterior or great sacrosciatic ligament, ligamentum sacrotuberosum, was cut completely across, and turned upwards with the gluteus maximus muscle. By the removal of the superficial layer of the obturator fascia where it covers the internal pudic artery in Alcock's canal (see Appendix, note ¹³⁵), that canal was opened throughout, and the artery was exposed from its point of emergence from the pelvis to the point at which it perforates the base of the triangular ligament (or, in the author's terminology, to the point at which it enters the *urogenital diaphragm—see Appendix, note ¹⁴²).

The Arteries of the Female Perineal Region.

¹ See Appendix, note ¹³⁸.
² See Appendix, note ¹⁴².
³ See Appendix, note ¹⁵⁵.

⁴ Called by Macalister the *anal artery*.
⁵ See note ¹ to p. 527 in Part IV.
⁶ See Appendix, note ¹⁵⁶.

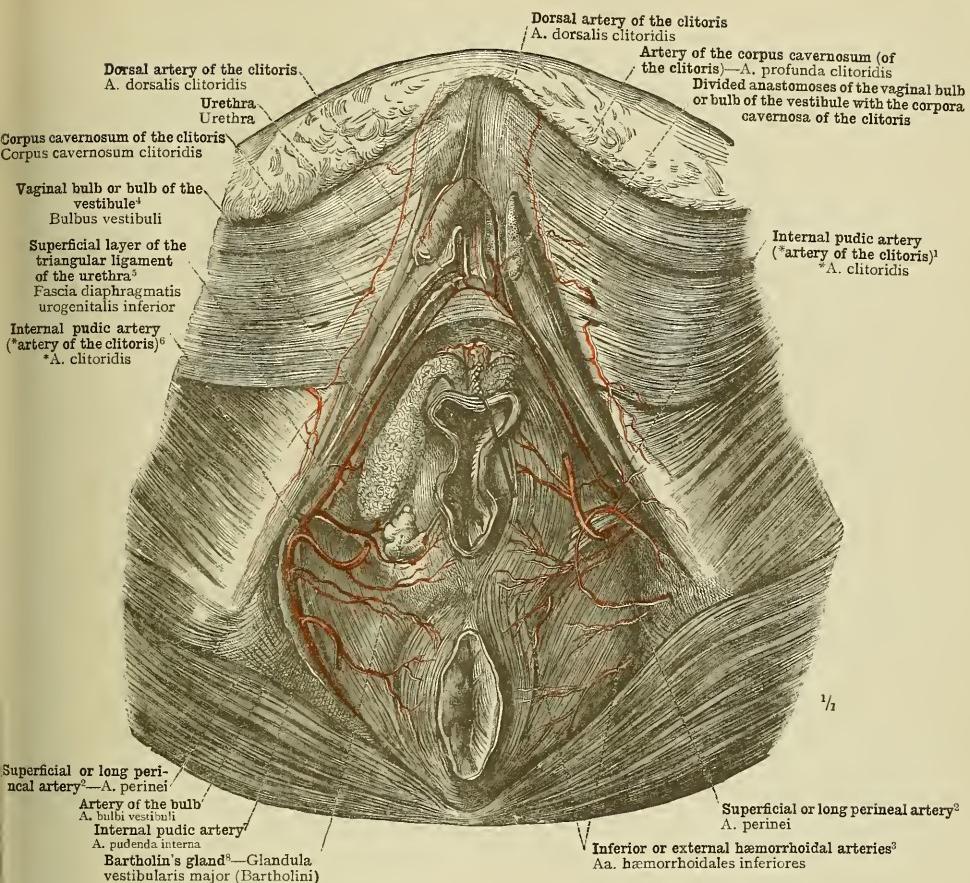


FIG. 994.—THE DEEP BRANCHES OF THE INTERNAL PUDIC ARTERY, ARTERIA PUDENDA EXTERNA IN THE UROGENITAL REGION,⁹ REGIO UROGENITALIS, OF THE FEMALE PERINEAL REGION. THE BRANCHES OF THE *ARTERY OF THE CLITORIS, ARTERIA CLITORIDIS (see Appendix, note 156): THE ARTERY OF THE BULB, ARTERIA BULEI VESTIBULE (VAGINÆ); THE ARTERY OF THE CORPUS CAVERNOsum (OF THE CLITORIS), ARTERIA PROFUNDA CLITORIDIS; AND THE DORSAL ARTERY OF THE CLITORIS, ARTERIA DORSALIS CLITORIDIS. THE DORSAL ARTERIES OF THE CLITORIS, ARTERIE DORSALES CLITORIDIS, ARE CONNECTED WITH ONE ANOTHER BY AN ANASTOMOTIC ARCH SITUATE ON THE SUPERFICIAL SURFACE OF THE INFERIOR PUBIC OR SUEPUBIC LIGAMENT (LIGAMENTUM ARCUATUM PUBIS).

In the preparation shown in Fig. 993, the labia majora and the labia minora or nymphæ were removed by a frontal section; on the right side of the body, the sphincter vaginae or bulbocavernosus muscle and the (superficial) transverse muscle of the perineum (see note¹ to p. 527 in Part IV.) were removed, the anastomoses between the vaginal bulb or bulb of the vestibule and the clitoris were divided, and the passage of the urethra through the urogenital diaphragm (see Appendix, note 154) was displayed by drawing the vagina backwards. The right corpus cavernosum of the clitoris was divided by a longitudinal section commencing at the point of entry of the artery of that body (arteria profunda clitoridis), and this artery was traced for some distance within its substance. The left corpus cavernosum was divided transversely at the point of entry of its artery (arteria profunda clitoridis), and by separating the segments of the crus the course of the dorsal artery of the clitoris, arteria dorsalis clitoridis, to its destination was exposed.

¹ See Appendix, note 156.

² See Appendix, note 157.

³ See Appendix, note 158.

⁴ See Appendix, note 159.

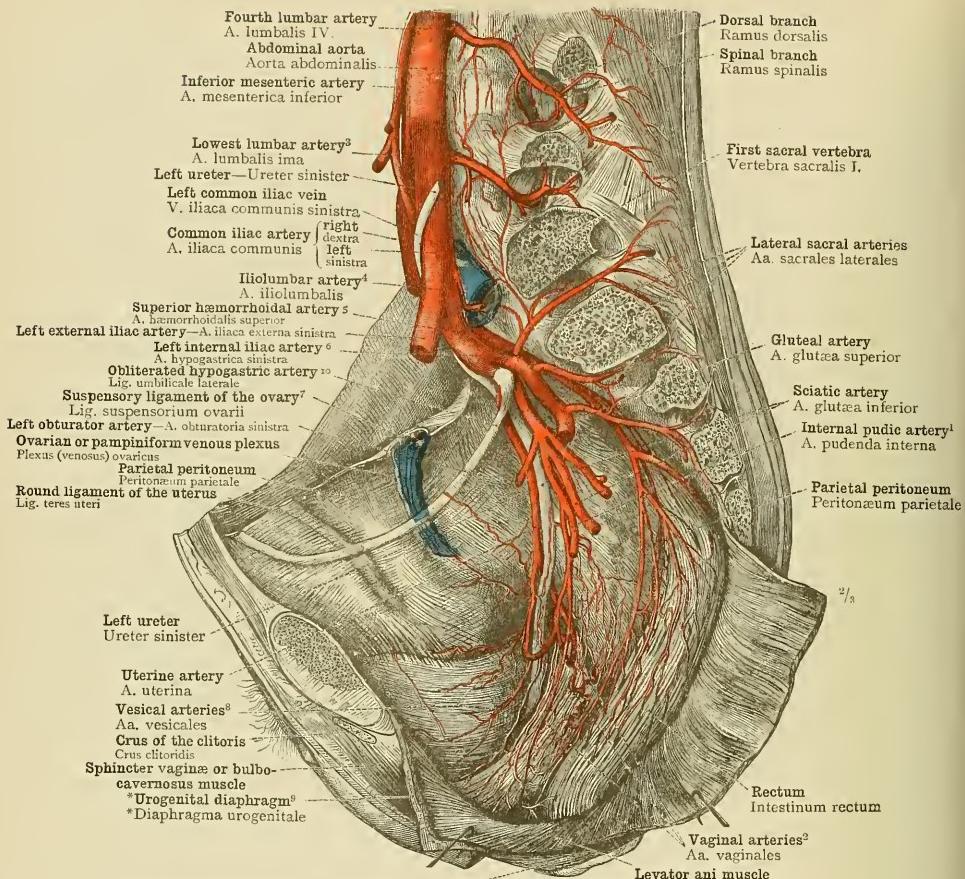
⁵ See Appendix to Part IV., note 154.

⁶ See Appendix, note 156.

⁷ See Appendix, note 159.

⁸ Known also as *Dickson's gland*, or the *subepithelial gland*. (See Appendix to Part IV., note 66.)—Tr.

⁹ Generally known in England as the *anterior half of the perineal space*.—Tr.



External or superficial sphincter of the anus
M. sphincter ani externus

¹ See Appendix, note 139.

² See Appendix, note 160.

³ See Appendix, note 125.

⁴ See Appendix, note 161.

⁵ Called by Macalister the *superior rectal artery*.

⁶ See Appendix, note 120.

⁷ See Appendix, note 162.

⁷ Called also the *infundibulopelvic or ovario-pelvic fold or ligament*.

⁸ See Appendix, note 162.

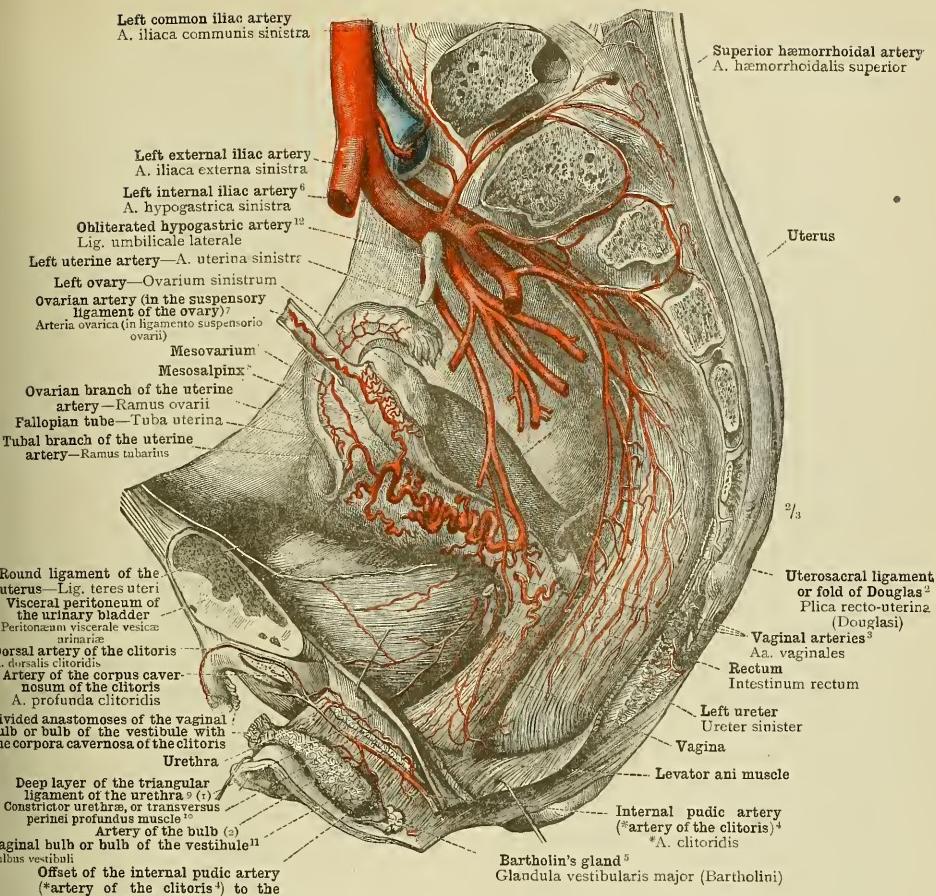
⁹ See Appendix, note 142.

¹⁰ Or *external umbilical ligament*—see Appendix, note 148.

FIG. 995.—THE LEFT INTERNAL ILIAC ARTERY, ARTERIA HYPOGASTRICA (see Appendix, note 120), AND ITS VISCERAL BRANCHES, RAMI VISCERALES, SEEN IN THE SUPERPERITONEAL SPACE OF A FEMALE PELVIS: THE LOWEST OFFSETS OF THE SUPERIOR HEMORRHOIDAL OR SUPERIOR RECTAL ARTERY, ARTERIA HÆMORRHOIDALIS SUPERIOR; THE UTERINE ARTERY, ARTERIA UTERINA, AS FAR AS ITS POINT OF ENTRANCE INTO THE BROAD LIGAMENT OF THE UTERUS (MESOMETRIUM); THE VAGINAL ARTERIES, ARTERIAE VAGINALES (see Appendix, note 100); THE TERMINAL OFFSETS TO THE BLADDER, ARTERIE VESICALES (see Appendix, note 162), AND TO THE URETER. OF THE PARIETAL BRANCHES, RAMI PARIETALES, THE LATERAL SACRAL ARTERIES, ARTERIAE SACRALES LATERALES, AND THE TWO LOWERMOST LUMBAR ARTERIES, ARTERIAE LUMBRALES, HAVE BEEN PRESERVED; THE SPINAL BRANCHES HAVE BEEN TRACED UP TO THEIR ENTRANCE INTO THE SPINAL CANAL.

The left lateral wall of the pelvis was removed by a section which in front passed close to the median plane, and behind, through the left row of sacral foramina; but the parietal peritoneal investment of this wall was preserved up to its reflection on to the urinary bladder, the vagina, and the rectum. The parts of these organs situated outside the peritoneum were laid bare, and the pelvic diaphragm (see Appendix, note 14c) was turned downwards.

The Arteries of the Female Pelvic Viscera.



(1) Fascia diaphragmatica urogenitalis superior

(2) A. bulbis vestibuli (vaginae)

¹ Called by Macalister the *superior rectal artery*.² Known also as the *recto-uterine fold* or *ligament*.³ See Appendix.⁴ See Appendix, note 150.⁵ Known also as *Dwyer's gland*, or the *suburethral gland*. (See Appendix to Part IV., note 152.)⁶ See Appendix, note 150.⁷ The *suspensory ligament of the ovary* is known also as the *infundibulopelvic ligament* or *ovario-pelvic fold* or *ligament*.—Tr.⁸ See Appendix to Part IV., note 152.⁹ See Appendix to Part IV., note 152.¹⁰ M. Transversus Peritoni Profundus.—For an account of the nomenclature of this muscle see Appendix to Part IV., note 151.—Tr.¹¹ Bulbus Vestibuli.—Regarding the nomenclature of this structure, see Appendix to Part IV., note 151.—Tr.¹² Or "external umbilical ligament"—see Appendix, note 148.¹³ See Appendix, note 148.

FIG. 996.—THE DISTRIBUTION OF THE LATERAL SACRAL ARTERIES, ARTERIAE SACRALES LATERALES, THE SUPERIOR HÆMORRHOIDAL OR SUPERIOR RECTAL ARTERY, ARTERIA HÆMORRHOIDALIS SUPERIOR, THE UTERINE ARTERY, ARTERIA UTERINA, THE OVARIAN ARTERY, ARTERIA OVARICA, AND THE DISTAL PORTION OF THE INTERNAL PUDIC ARTERY, *ARTERIA CLITORIDIS (see Appendix, note 156).

In the preparation shown in Fig. 995, the parietal peritoneum was cut away along the line of its reflection on to the rectum and the urinary bladder, and the mesometrium (*i.e.* the broad ligament of the uterus) was severed along its attachment to the uterus; the Fallopian tube with its mesentery (the mesosalpinx) and also the suspensory ligament of the ovary were turned inwards and upwards, while the mesovarium was turned upwards and backwards, the lower layer of the latter was removed, and the ovarian artery with its ovarian offsets and its anastomosis with the uterine artery was displayed. The deep layer of the triangular ligament of the urethra was detached from the deep transverse perineal muscle and was drawn upwards, in order to show the branch of the internal pudic artery running forwards on the superficial surface of this deep layer. From a transversely disposed arch formed by the anastomosis of this branch with the corresponding vessel of the opposite side, several small offsets arise, which run forwards (downwards) along the urethra. By the removal of the superficial layer of the triangular ligament of the urethra the internal pudic artery (arteria clitoridis—see Appendix, note 156) was exposed up to its terminal bifurcation.

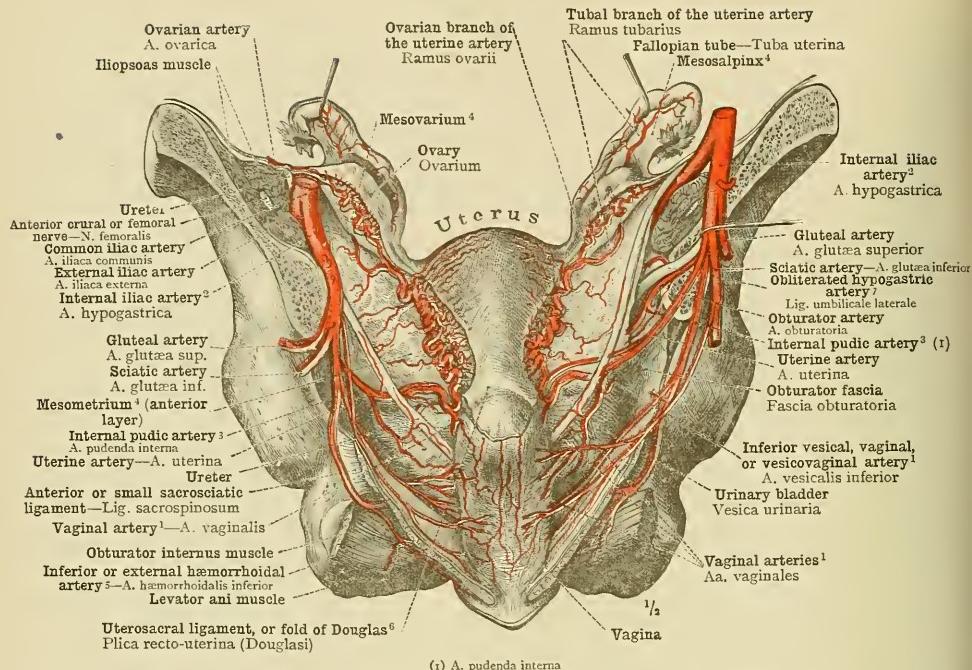


FIG. 997.—THE ARTERIES OF THE UTERUS, THE OVARIES, THE FALLOPIAN TUBES, THE VAGINA, AND THE URINARY BLADDER, SEEN FROM BEHIND: THE OVARIAN ARTERY, ARTERIA OVARICA (ARTERIA SPERMATICA INTERNA); THE UTERINE ARTERY, ARTERIA UTERINA, WITH ITS OFFSETS TO THE OVARY (RAMUS OVARII), THE FALLOPIAN TUBE (RAMUS TUBARII), THE VAGINA ARTERIAE VAGINALE—see Appendix, note 163), AND TO THE BLADDER (ARTERIA VESICALIS INFERIOR)—i.e., THE INFERIOR VESICAL, VAGINAL, OR VESICOVAGINAL ARTERY (IN THIS SPECIMEN ARISING FROM THE UTERINE ARTERY, INSTEAD OF, AS USUALLY, ARISING SEPARATELY FROM THE ANTERIOR DIVISION OF THE INTERNAL ILIAC ARTERY—see Appendix, note 163); THE INTERNAL PUBIC ARTERY, ARTERIA PUDENDA INTERNA, AND ITS OFFSETS TO THE VAGINA (see Appendix, note 163). THE PELVIC PORTION OF THE URETER, AND ITS RELATIONS TO THE UTERINE ARTERY, THE CERVIX UTERI, THE VAGINA, AND THE URINARY BLADDER.

By a frontal section passing on each side through the great sacrosciatic foramen, the posterior wall of the pelvis was removed, in order to display (after removing the rectum) the uterus and the vagina, and, in addition, the lateral parts of the bladder. The uterus and the vagina were drawn upwards, the ovaries upwards and forwards; the lower layer of the mesovarium and the hinder layer of the mesometrium were removed, and the ureters, thus exposed, were preserved as nearly as possible in their natural position. The right internal iliac artery was drawn outwards and backwards, to display more fully the origin of its branches and that of the obliterated hypogastric artery (*see note 7 above*). The branches of the posterior division of the artery have been cut away near their origin, and the internal pudic artery has on both sides been traced as far as its passage through the small sacrosciatic foramen.

The Arteries of the Female Pelvic Viscera.

ARTERIÆ COLLI ET CAPITIS
THE ARTERIES OF THE HEAD
AND NECK

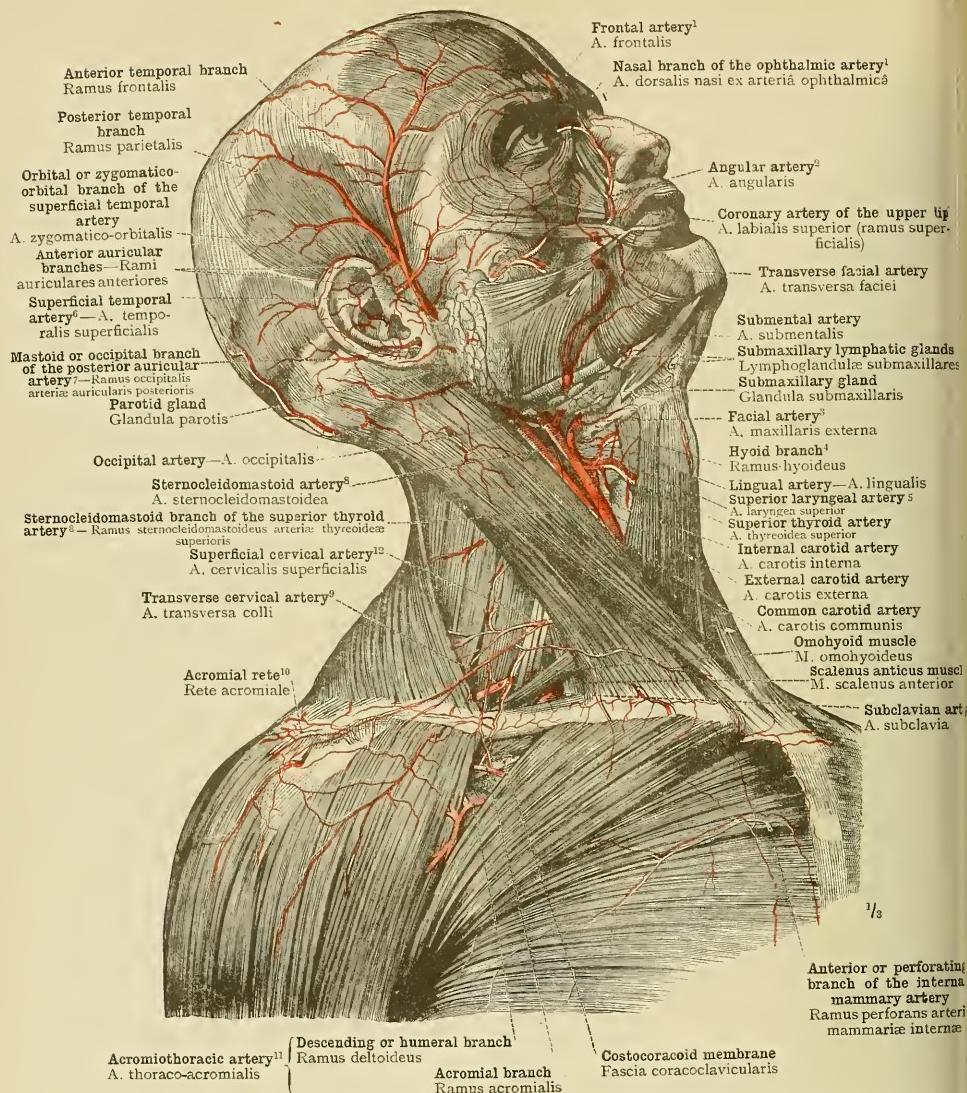


FIG. 998.—SUPERFICIAL ARTERIES OF THE HEAD AND NECK, AND OF THE UPPER PART OF THE PECTORAL REGION AND THE SHOULDER; SEEN FROM THE RIGHT SIDE.

Over the anterior part of the parotid gland, the parotideomasseteric fascia has been left intact. The lower ends of the levator labii superioris alaeque nasi, levator labii superioris proprius, and zygomaticus minor muscles have been removed, to display the facial artery and the origin of the coronary artery of the upper lip.

The Superficial Branches of the External Carotid, Subclavian, and Axillary Arteries.

¹ See Appendix, note 161.

² See Appendix, note 165.

³ See Appendix, note 166.

⁴ See Appendix, note 167.

⁵ Or laryngeal branch of the superior thyroid artery.

⁶ See Appendix, note 168.

⁸ See Appendix, note 169.

⁷ Called by Macalister the posterior terminal branch of the posterior auricular artery.

⁹ See Appendix, note 172.—Tr.

¹⁰ See Appendix, note 170.

¹¹ Called by Macalister the thoraco-acromial artery.

¹² See Appendix, note 172.

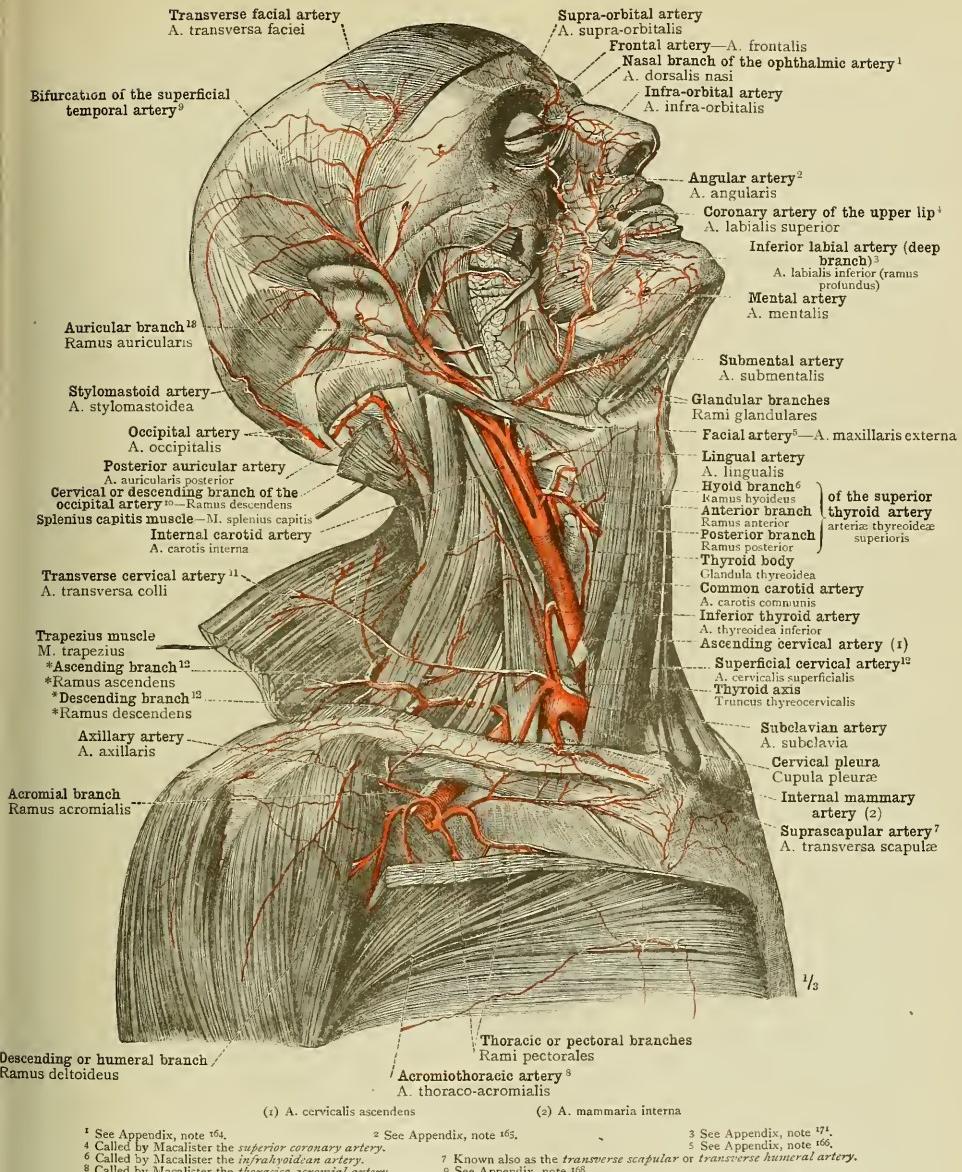
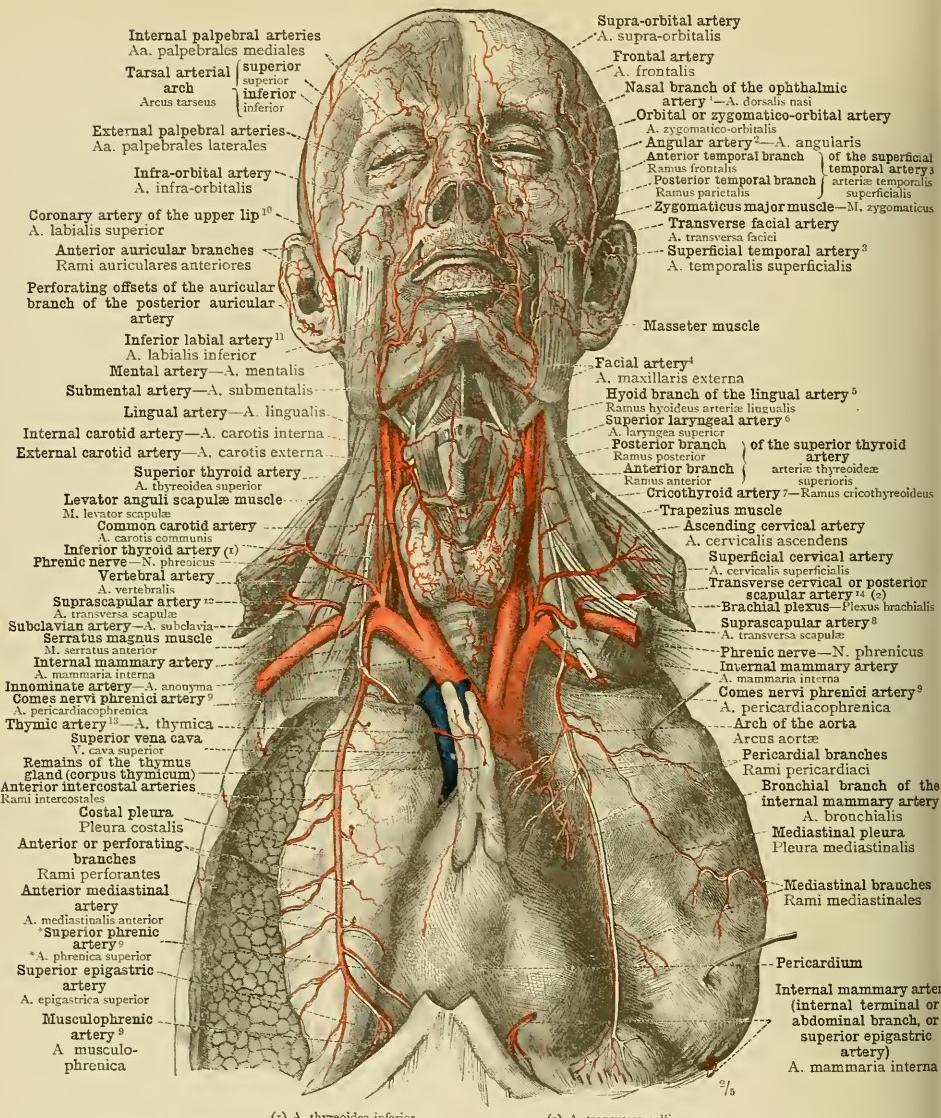


FIG. 999.—IN THE PREPARATION SHOWN IN FIG. 998, THE SUPERFICIAL MUSCLES OF THE FACE, THE HINDER PART OF THE PAROTID GLAND, THE SUBMAXILLARY GLAND, THE STERNOCLEIDOMASTOID MUSCLE, THE INFERIOR (POSTERIOR) BELLY OF THE OMHOVOID MUSCLE, THE UPPER PART OF THE CLAVICULAR PORTION OF THE PECTORALIS MAJOR MUSCLE, AND THE DEEP LAYER OF THE PECTORAL FASCIA, WERE REMOVED. THE ORBICULARIS ORIS MUSCLE WAS INCISED ABOVE AND BELOW THE APERTURE OF THE MOUTH (RIMA ORIS) AND PARALLEL WITH THAT APERTURE, THE INCISION PENETRATING TO THE LABIAL GLANDS, IN ORDER TO EXPOSE THE CORONARY ARTERIES OF THE LIPS.

The Deep Branches of the External Carotid, Subclavian, and Axillary Arteries.



(r) A. thyroidea inferior

(z) A. transversa colli

¹ See Appendix, note 164.⁵ Called by Macalister the *suprathyroidian artery*. See Appendix, note 167.⁷ See Appendix, note 173.⁹ See Appendix, note 174.¹⁰ Called also the *transverse scapular or transverse humeral artery*.¹² See Appendix, note 172.² See Appendix, note 165.⁶ Known also as the *transverse scapular or transverse humeral artery*.⁸ See Appendix, note 168.¹⁰ Called by Macalister the *superior coronary artery*.¹² See Appendix, note 173.⁴ See Appendix, note 166.⁶ Or *laryngeal branch of the superior thyroid artery*.¹¹ See Appendix, note 171.¹³ See Appendix, note 173.

FIG. 1000.—ON THE RIGHT SIDE OF THE BODY, THE COSTAL PLEURA AND THE LUNG HAVE BEEN PUSHED SOMEWHAT BACKWARDS; AND BETWEEN THE INTERNAL MAMMARY ARTERY AND THE ANTERIOR CUT SURFACES OF THE RIBS THE COSTAL PLEURA HAS BEEN REMOVED, EXPOSING THE SURFACE OF THE LUNG. THE LEFT LAYER OF THE MEDIASTINUM HAS BEEN SEPARATED FROM ITS ATTACHMENTS AS FAR BACK AS THE ROOT OF THE LUNG, AND HAS BEEN DRAWN OUTWARDS WITH THAT ORGAN.

The Distribution of the Branches of the Arch of the Aorta in the Head and Neck, and the Distribution of the Internal Mammary Artery.

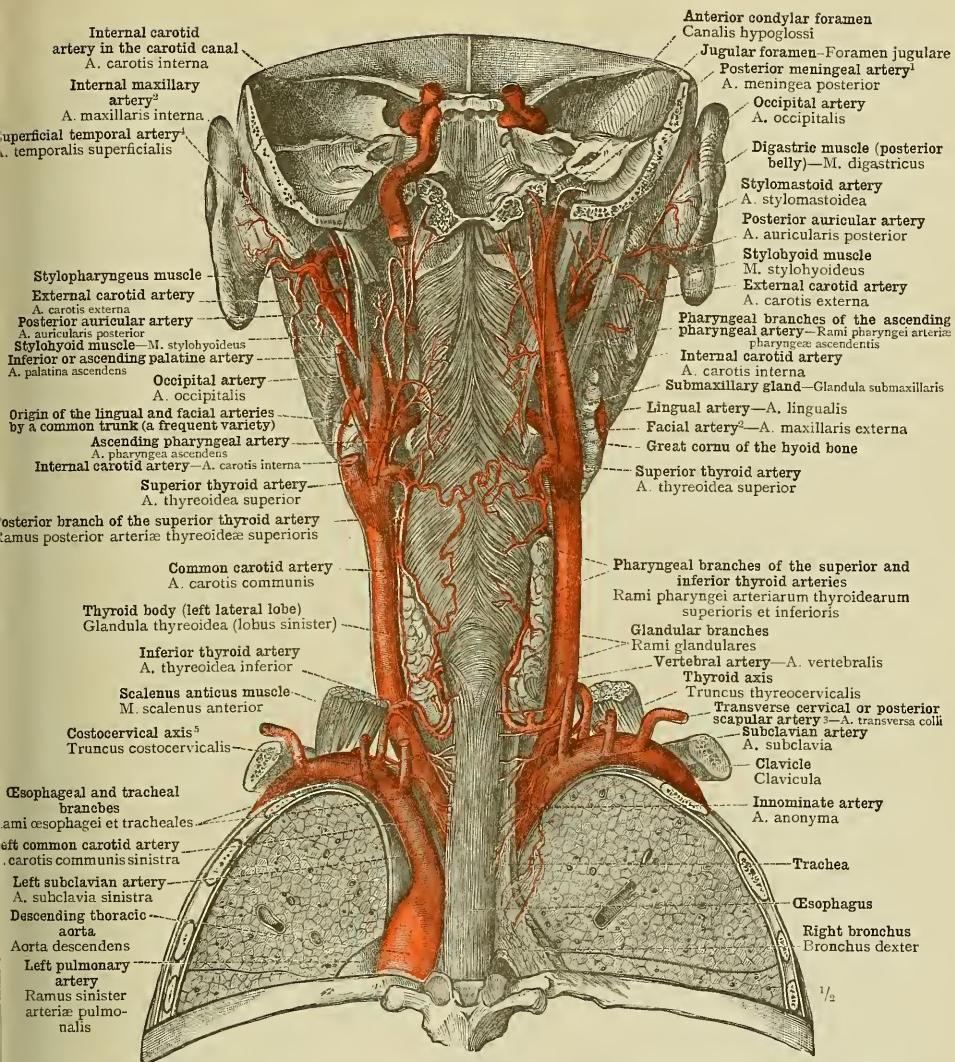
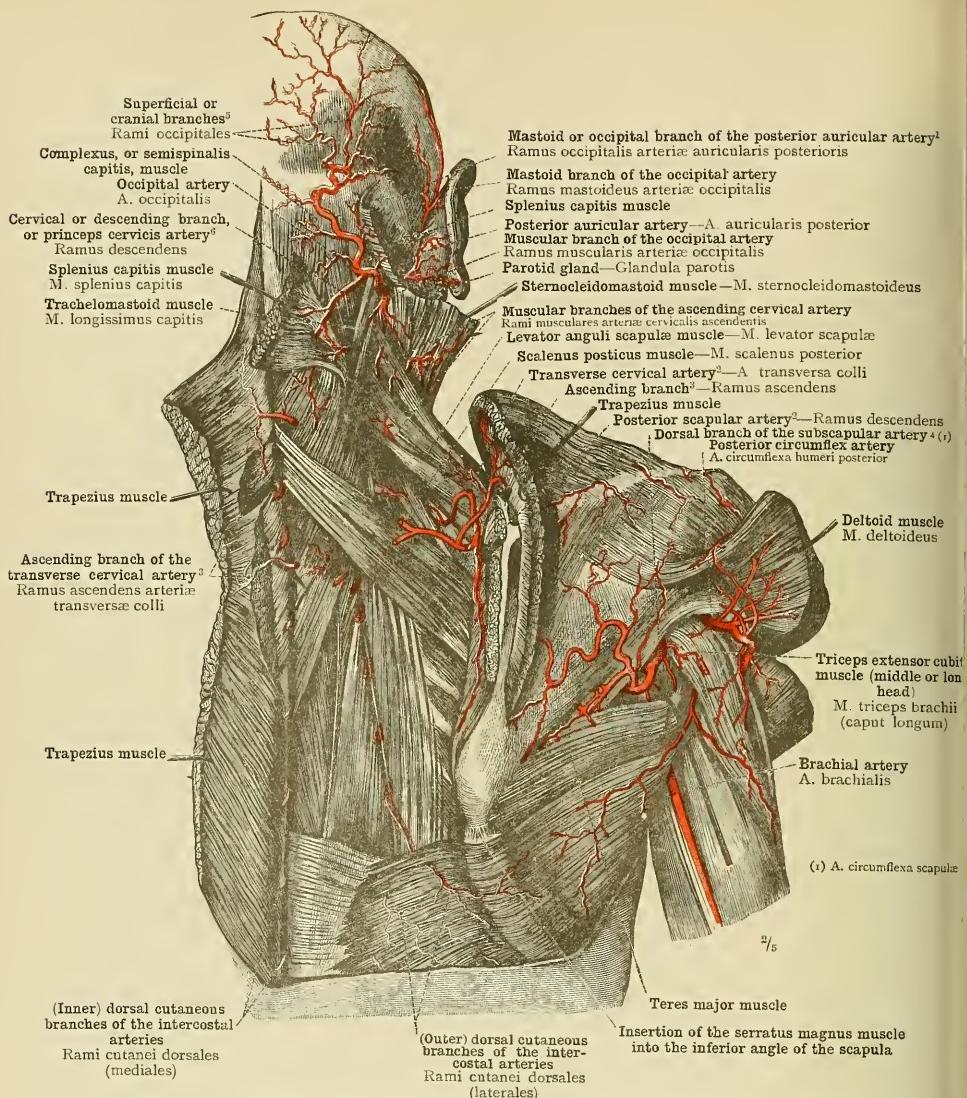
¹ See Appendix, note 176.² See Appendix, note 166.³ See Appendix, note 172.⁴ See Appendix, note 168.⁵ See Appendix, note 177.

FIG. 1001.—THE BRANCHES OF THE ARCH OF THE AORTA AND THE ARTERIES OF THE NECK, SEEN FROM BEHIND. THE ARTERIES OF THE PHARYNX: THE ASCENDING PHARYNGEAL ARTERY, ARTERIA PHARYNGEA ASCENDENS, ITS PHARYNGEAL BRANCHES, RAMI PHARYNGEI, AND ITS MENINGEAL BRANCH (see Appendix, note 176), ARTERIA MENINGEA POSTERIOR, TO THE HINDER PART OF THE DURA MATER; THE PHARYNGEAL BRANCHES, RAMI PHARYNGEI, OF THE SUPERIOR AND INFERIOR THYROID ARTERIES; THE OESOPHAGEAL AND TRACHEAL BRANCHES, RAMI OESOPHAGEI ET TRACHEALES, OF THE INFERIOR THYROID ARTERY.

Arteria subclavia, the subclavian artery, arteria carotis communis, the common carotid artery, arteria carotis interna, the internal carotid artery; the arteries of the pharynx, the trachea, and the oesophagus.



¹ Called by Macalister the *posterior terminal branch of the posterior auricular artery*.

² See Appendix, note 172.

³ In Macalister's terminology this is the *terminal branch of the transverse cervical or posterior scapular artery*.

⁴ Commonly known in England as the *dorsalis scapulae artery*.

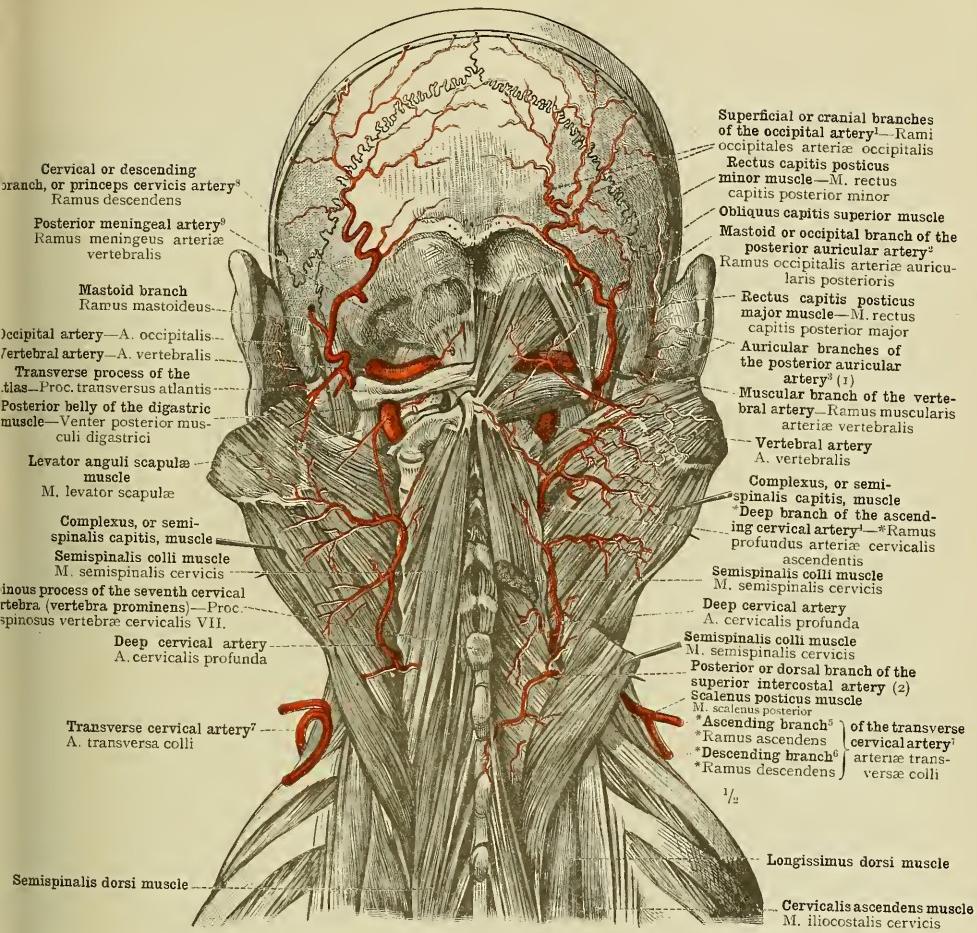
⁵ Called by Macalister the *external and internal terminal branches of the occipital artery*.

⁶ Or *ramus cervicalis princeps arterie occipitalis*.

FIG. 1002.—THE DEEP ARTERIES OF THE RIGHT NUCHAL REGION AND THE BACK OF THE RIGHT SHOULDER; SEEN FROM BEHIND.

The scapula was drawn a little away from the trunk; a horizontal incision was made through the posterior half of the deltoid muscle a little above the middle of its vertical extent, and the muscle was turned forwards; the teres major muscle was drawn somewhat downwards. The superficial offsets only of the dorsal branch of the subscapular artery (*dorsalis scapulae artery*—*arteria circumflexa scapulae*) are seen, on the surface of the infraspinatus fascia; the deeper branches of this artery, ramifying beneath the infraspinatus muscle, are shown in Fig. 1010.

Arteria occipitalis, the occipital artery; arteria transversa colli, the transverse cervical (or posterior scapular) artery; arteria circumflexa scapulae, the dorsal branch of the subscapular or dorsalis scapulae artery; and arteria circumflexa humeri posterior, the posterior circumflex artery (of the arm).



(r) Rami auriculares arteriae auricularis posterioris

(z) Ramus dorsalis arteriae intercostalis supremae

¹ Called by Macalister the *external and internal terminal branches of the occipital artery*.

² Called by Macalister the *posterior terminal branch of the posterior auricular artery*.

³ The branch of the *posterior auricular artery* from which these offsets are derived is called by Macalister the *anterior terminal branch*.

⁴ See Appendix, note 178.

⁵ Called by Macalister the *cervical branch* of the *transverse cervical* or *posterior scapular artery*. See Appendix, note 178.

⁶ The *posterior scalenus* of English anatomists. See Appendix, note 178.

⁷ *Transverse cervical* or *posterior scapular artery*, according to Macalister. See Appendix, note 177.

⁸ Or *ramus cervicis princeps arteriae occipitalis*.

⁹ See Appendix, note 176.

FIG. 1003.—THE ARTERIES OF THE OCCIPITAL REGION, AND THE DEEPEST ARTERIES OF THE NUCHAL REGION. ON THE LEFT SIDE, THE COMPLEXUS OR SEMISPINALIS CAPITIS MUSCLE IS SUPPLIED BY THE DEEP CERVICAL ARTERY; ON THE RIGHT SIDE, HOWEVER, THIS MUSCLE IS FURNISHED WITH BLOOD BY A LARGE MUSCULAR OFFSET OF THE ASCENDING CERVICAL ARTERY, KNOWN AS THE DEEP BRANCH, RAMUS PROFUNDUS (see Appendix, note 178). THE RIGHT TRANSVERSE CERVICAL ARTERY (see note ⁷ above) PERFORATES THE SCALENUS POSTICUS MUSCLE: THIS IS A FREQUENT VARIETY.

In the preparation shown in Fig. 1002, the complexus or semispinalis capitis muscle was separated on each side from its attachment to the skull, and turned outwards. On the right side, the semispinalis colli was cut across a little above the middle of its vertical extent, and the lower segment was drawn outwards, in order to display the passage of the deep cervical artery between the transverse processes of the seventh cervical and first dorsal vertebrae. On the left side, the rectus capitis posticus major, rectus capitis posticus minor, obliquus capitis superior, and obliquus capitis inferior muscles have been removed, and the vertebral artery has thus been fully exposed both above and below the atlas.

Arteriæ cervicalis profunda, vertebralis et occipitalis—The deep cervical, vertebral, and occipital arteries.

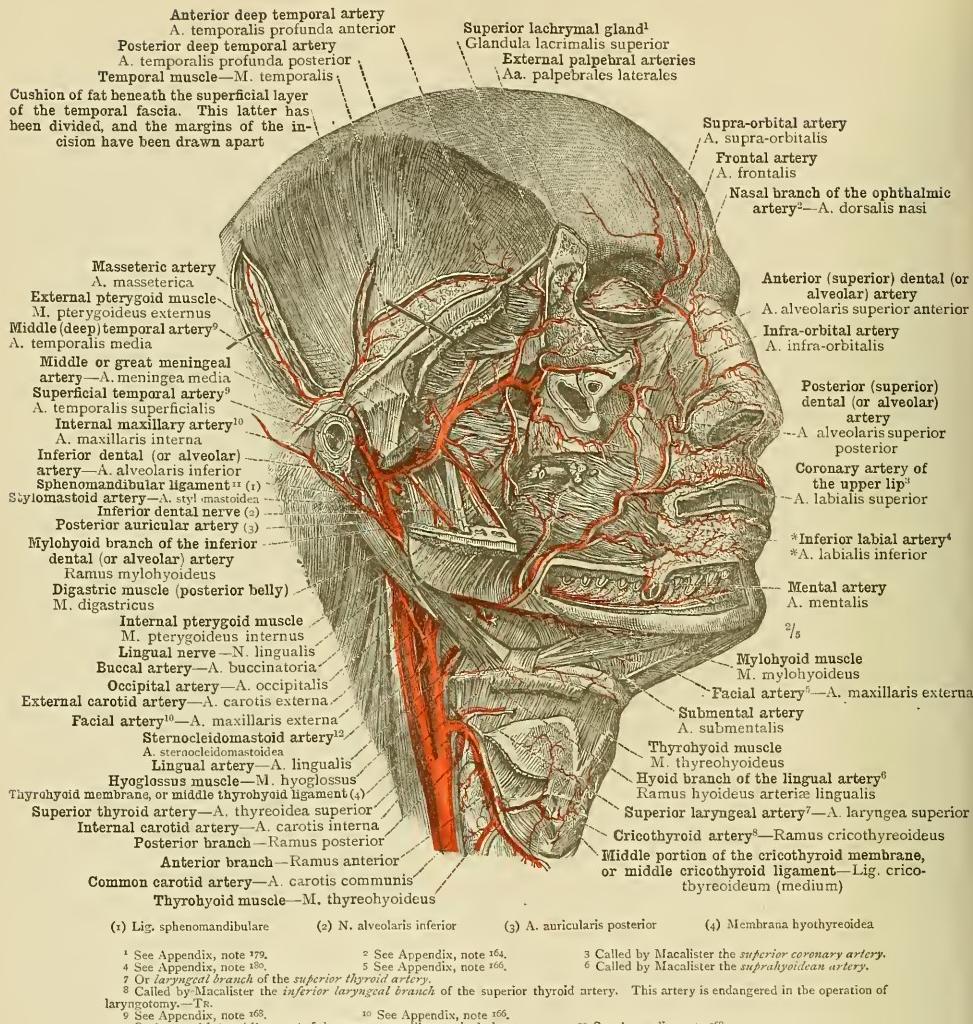


FIG. 1004.—THE ARTERIES OF THE UPPER PART OF THE FRONT OF THE NECK, OF THE RETROMANDIBULAR FOSSA (FOSSA RETROMANDIBULARIS), AND OF THE ZYGOMATIC FOSSA (FOSSA INFRATEMPORALIS); SEEN FROM THE RIGHT SIDE.

In the preparation shown in Fig. 1003, the pinna or auricle was cut away, and the superficial temporal artery was removed above the point at which the middle (deep) temporal branch (arteria temporalis media) is given off. The zygomatic arch was removed, together with the greater part of the masseter muscle, and the ramus of the mandible was cut away from the neck below the middle of its vertical extent, the sphenomandibular ligament or internal lateral ligament of the temporomaxillary articulation, however, being left intact. The anterior portion of the outer wall of the orbit was removed, the orbital periosteum being preserved; the upper segment of the temporal muscle was drawn upwards; and the superficial layer of the temporal fascia having been incised and the margins of the incision having been drawn apart, the cushion of fat beneath this superficial layer, and the anterior division of the middle (deep) temporal artery, were exposed; the posterior division of this artery was exposed by an incision through the temporal fascia and the temporal muscle. The thyroid muscle was for the most part removed, in order to lay bare the superior laryngeal artery perforating the thyroid membrane or middle thyroid ligament.

Arteria maxillaris interna—The internal maxillary artery.

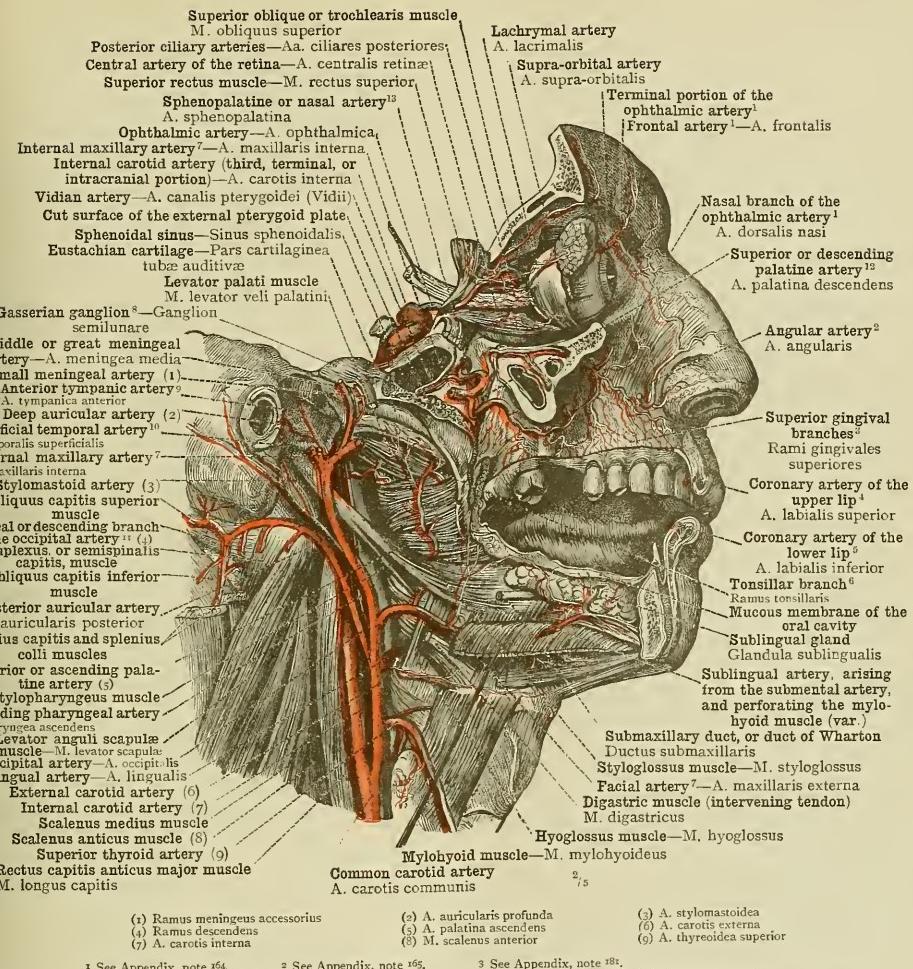


FIG. 1005.—THE ARTERIES OF THE ORBIT, THE TERMINAL BRANCHES OF THE INTERNAL MAXILLARY ARTERY, THE ARTERIES OF THE PHARYNX, AND THE ARTERIES OF THE SUBLINGUAL REGION; SEEN FROM THE RIGHT SIDE.

In the preparation shown in Fig. 1004, the right half of the mandible was removed as far forward as the attachment of the digastric muscle, together with the external and internal pterygoid muscles and the second (middle) part of the internal maxillary artery, and by turning down the mylohyoid muscle the sublingual gland was exposed. By a sagittal section, which opened the infra-orbital canal, the outer half of the orbit was removed, the contents of the cavity, however, being preserved. By a section which opened the anterior part of the Vidian or pterygo-palatine canal, the right sphenoidal sinus, the foramen rotundum, the foramen ovale, and the foramen spinosum, the greater part of the floor of the middle cranial fossa was removed, and, after the external pterygoid plate with the circumflexus or tensor palati muscle had been cut away, the origin of the branches of the third (terminal) part of the internal maxillary artery in the spheno-maxillary fossa was displayed.

A. maxillaris interna, the internal maxillary artery; a. ophthalmica, the ophthalmic artery; a. pharyngea ascendens, the ascending pharyngeal artery; a. palatina ascendens, the inferior or ascending palatine artery; a. sublingualis, the sublingual artery.

¹ See Appendix, note 164.

² See Appendix, note 165.

³ Called by Macalister the *superior coronary artery*.

⁴ See Appendix, note 166.

⁵ See Appendix, note 167.

⁶ See Appendix, note 168.

⁷ See Appendix, note 169.

⁸ Called also *principis cervicis artery*, or *ramus cervicalis principis arteriae occipitalis*.

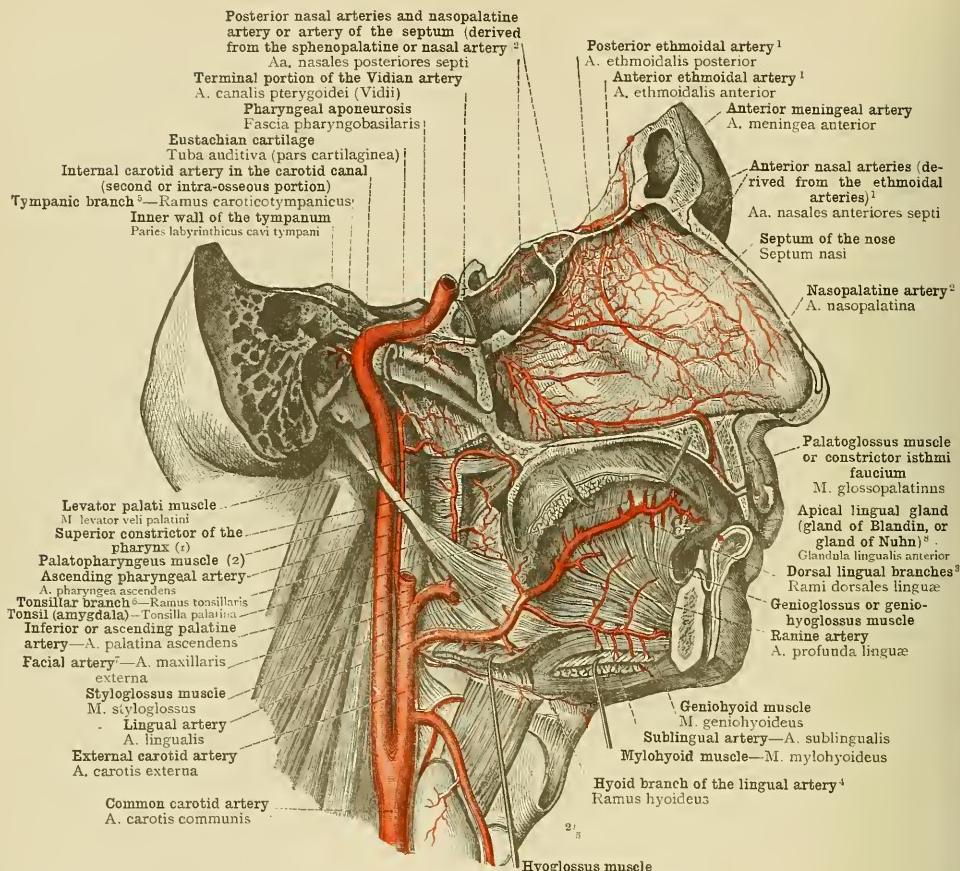
⁹ See Appendix, note 170.

¹⁰ See Appendix, note 181.

¹¹ Called by Macalister the *inferior coronary artery*.

¹² Or *ganglion of the fifth cranial (trigeminal) nerve*.

¹³ See Appendix, note 182.



¹ See Appendix, note 184.

² See Appendix, note 185.

³ See Appendix, note 185.

⁴ Called by Macalister the *suprathyroid artery*.

⁵ See Appendix, note 166.

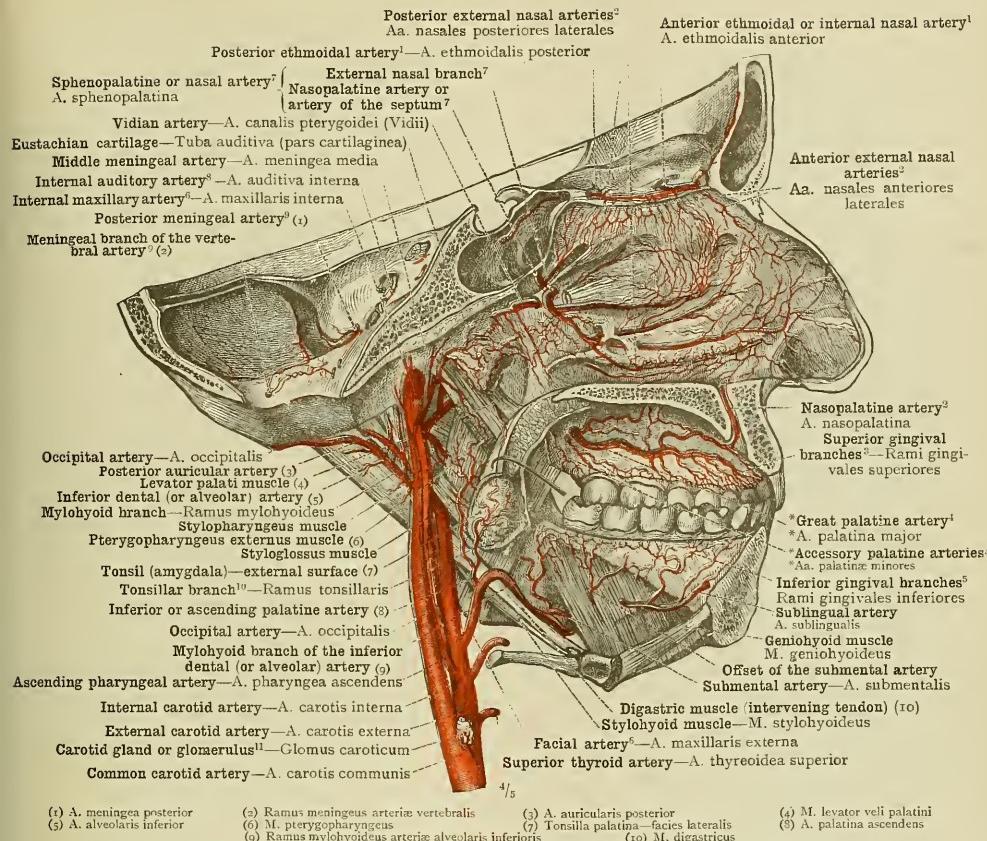
⁶ See Appendix, note 187.

⁷ See note ² to p. 420 in Part IV.

FIG. 1006.—ARTERIES OF THE NASAL SEPTUM, THE TONGUE, AND THE PHARYNX ; SEEN FROM THE RIGHT SIDE.

In the preparation shown in Fig. 1005, by a sagittal section passing a little to the right of the median plane, the right side of the septum of the nose was exposed : by a section somewhat further to the right, the lower part of the internal pterygoid plate was removed, and the Vidian or pterygoid canal was opened up to its posterior orifice. By means of a section passing through the temporal bone itself, the direction of which was nearly that of the axis of the petrous portion of the temporal bone, the middle ear was opened, and also the carotid canal, by the removal of its outer wall. The posterior extremity of the Eustachian cartilage was cut away, the levator palati muscle was removed just above the point at which it enters the soft palate, and the pharyngeal aponeurosis was laid bare down to the upper border of the superior constrictor of the pharynx. By the removal of the anterior portion of this muscle, the outer surface of the tonsil (amygdala) was exposed. By the partial removal of the hyoglossus muscle and by drawing its lower segment downwards, the lingual artery was laid bare ; and by the partial removal of the intrinsic muscular substance of the tongue, the ramine artery was brought into view.

Arteries of the septum of the nose. A. lingualis, the lingual artery. Aa. pharyngea et palatina ascendens, the ascending pharyngeal and ascending palatine arteries. A. carotis interna, the internal carotid artery.



(1) A. meningea posterior
(2) Ramus meningeus arteria vertebralis
(3) A. alveolaris inferior

(4) Ramus meningeus arteria vertebralis
(5) M. pterygopharyngeus
(6) Ramus mylohyoideus arterie alveolaris inferiores

(7) Tonsilla palatina - facies lateralis
(8) A. auricularis posterior
(9) M. digastricus

(10) M. levator veli palatini
(11) A. palatina ascendens

¹ See Appendix, note 284.

² See Appendix, note 285.

³ See Appendix, note 286.

⁴ See Appendix, note 287.

⁵ See Appendix, note 288.

⁶ See Appendix, note 289.

⁷ See Appendix, note 290.

⁸ Called by Quain the *auditory artery* without qualification.

⁹ See Appendix, note 291.

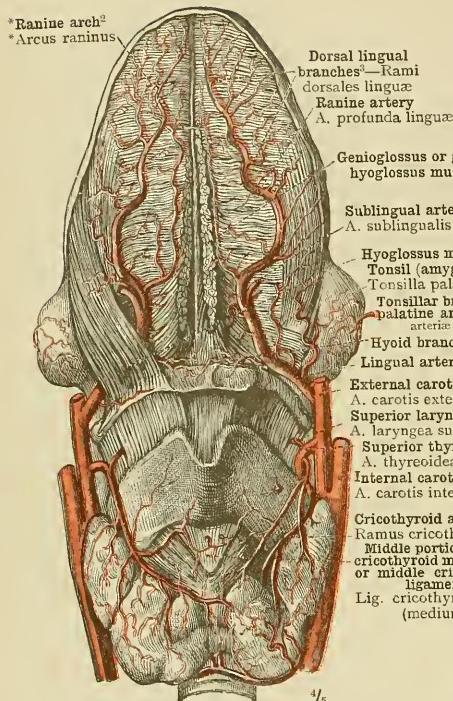
¹⁰ See Appendix, note 292.

¹¹ Called by Macalister the *intercarotic body*, and regarded by him as "the remains of a vascularrete, probably that of the second visceral cleft." Known also as *glandula intercarotica*, but the term "gland" is a misnomer.—TR.

FIG. 1007.—THE ARTERIES OF THE EXTERNAL WALL OF THE NASAL FOSSÆ, OF THE CARTILAGINOUS PORTION OF THE EUSTACHIAN TUBE, OF THE HARD PALATE, OF THE TONSIL (AMYGDALA), AND OF THE EXTERNAL WALL OF THE MOUTH; THE SMALLER MENINGEAL ARTERIES; THE INTERNAL CAROTID ARTERY, THE EXTERNAL CAROTID ARTERY AND ITS BRANCHES. LEFT HALF OF THE HEAD SEEN FROM THE INNER SIDE.

By a sagittal section passing a little to the left of the median plane, the right half of the head was removed, the spinal column having first been cut away. After the pharynx had been removed, the left external and internal carotid arteries, as well as the branches of the former artery, were exposed from within. The left half of the soft palate and the left tonsil (amygdala) were retained, the latter being drawn a little forward, in order to display the ramifications on its surface of the offsets of the tonsillar branch of the ascending palatine artery. Behind the levator palati muscle, a narrow strip of the pterygopharyngeus externus muscle was preserved. The posterior extremity of the middle turbinate bone was removed, in order to expose the lower posterior external nasal branch of the sphenopalatine or nasal artery. In the oral cavity, the tongue and the sublingual gland were removed, the mylohyoid and geniohyoid muscles as well as the anterior portion of the sublingual artery being preserved, and the inferior gingival branches were exposed, springing from the sublingual artery, from a perforating offset of the submental artery, and from the mylohyoid branch of the inferior dental (or alveolar) artery.

Arteries of the external wall of the nasal fossæ: A. pterygopalatina, the superior or descending palatine artery. A. canalis pterygoidei, the Vidian artery. Aa. pharyngea et palatina ascendens, the ascending pharyngeal and the inferior or ascending palatine artery.



¹ Or laryngeal branch of the superior thyroid artery.

² See Appendix, note 191.

³ See Appendix, note 185.

⁴ Or velum pendulum palati.

⁵ The hyoid branch of the lingual artery is called by Macalister the *suprathyroidic artery*.

⁶ Called by Macalister the *inferior laryngeal branch of the superior thyroid artery*. This vessel is endangered in the operation of laryngotomy.—Tr.

FIG. 1008.—THE TONGUE, THE LARYNX, AND THE THYROID BODY, SEEN FROM THE VENTRAL SIDE. THE RAMIFICATION OF THE RANINE ARTERY, ARTERIA PROFUNDA LINGUÆ, AND THE TRANSVERSE ANASTOMOSIS BETWEEN THE TWO RANINE ARTERIES, KNOWN AS THE *RANINE ARCH, *ARCUS RANINUS (see Appendix, note ¹⁰¹); THE LINGUAL ARTERY, ARTERIA LINGUALIS, WITH ITS HYOID BRANCH, RAMUS HYOIDEUS (see note ⁶ above); THE ARTERIES OF THE TONSIL (AMYGDALA), TONSILLA PALATINA; THE SUPERIOR THYROID ARTERY, ARTERIA THYROIDEA SUPERIOR, WITH THE SUPERIOR LARYNGEAL ARTERY, ARTERIA LARYNGEA SUPERIOR (see note ¹ above), AND THE CRICOHYOID ARTERY, RANUS CRICOHYROIDEUS (see note ⁷ above).

In the right half of the tongue the hyoglossus muscle has been preserved; in the left half it has been removed, and the left lingual artery has thus been fully exposed. The sublingual artery, arteria sublingualis, has been cut away on both sides close to its origin; the dorsal lingual branches have been traced for a considerable distance by the partial removal of the intrinsic muscular substance of the tongue.

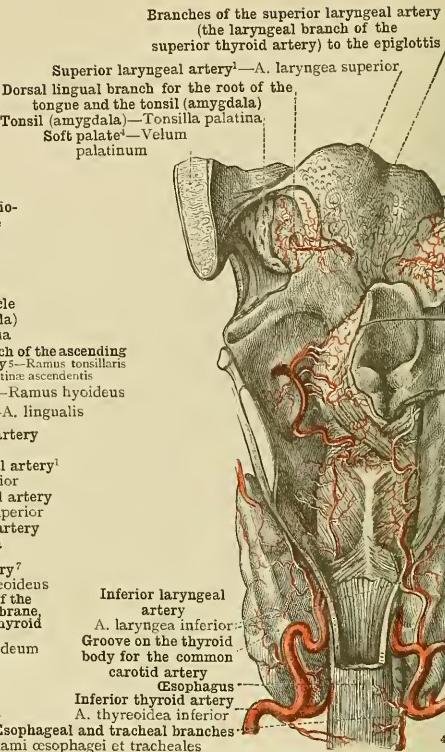


FIG. 1009.—THE ROOT OF THE TONGUE, THE LARYNX, AND THE LARYNGEAL PORTION OF THE PHARYNX, WITH THE ADJOINING PORTION OF THE CŒSOPHAGUS AND THE THYROID BODY; SEEN FROM THE DORSAL SIDE.

After the posterior wall of the pharynx had been removed, the mucous membrane covering the left pyriform sinus and the anterior wall of the pharynx as far down as the commencement of the cœsophagus was dissected off, and the superior and inferior laryngeal arteries were exposed. The epiglottis was drawn to the right, in order to display the offsets with which it is supplied by the superior laryngeal artery. On both sides the mucous membrane of the root of the tongue and of the tonsils was partially removed, in order to expose the site of emergence on the dorsum of the muscular substance of the tongue of the hindmost dorsal lingual branch, and the superficial ramification of that artery.

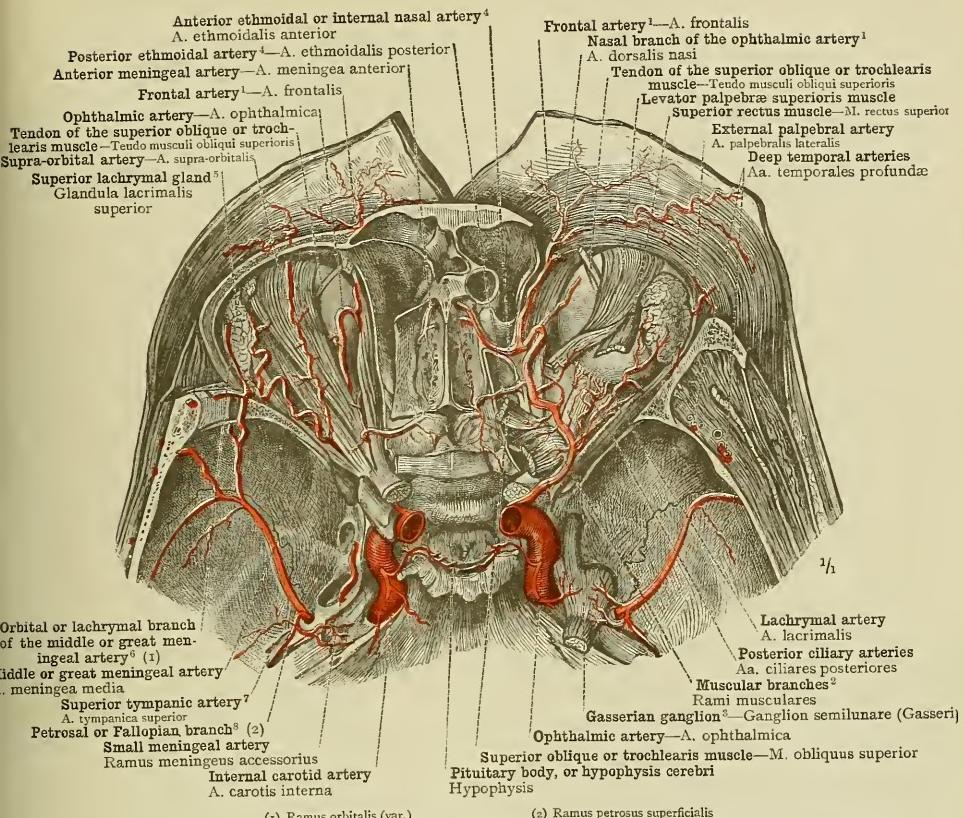
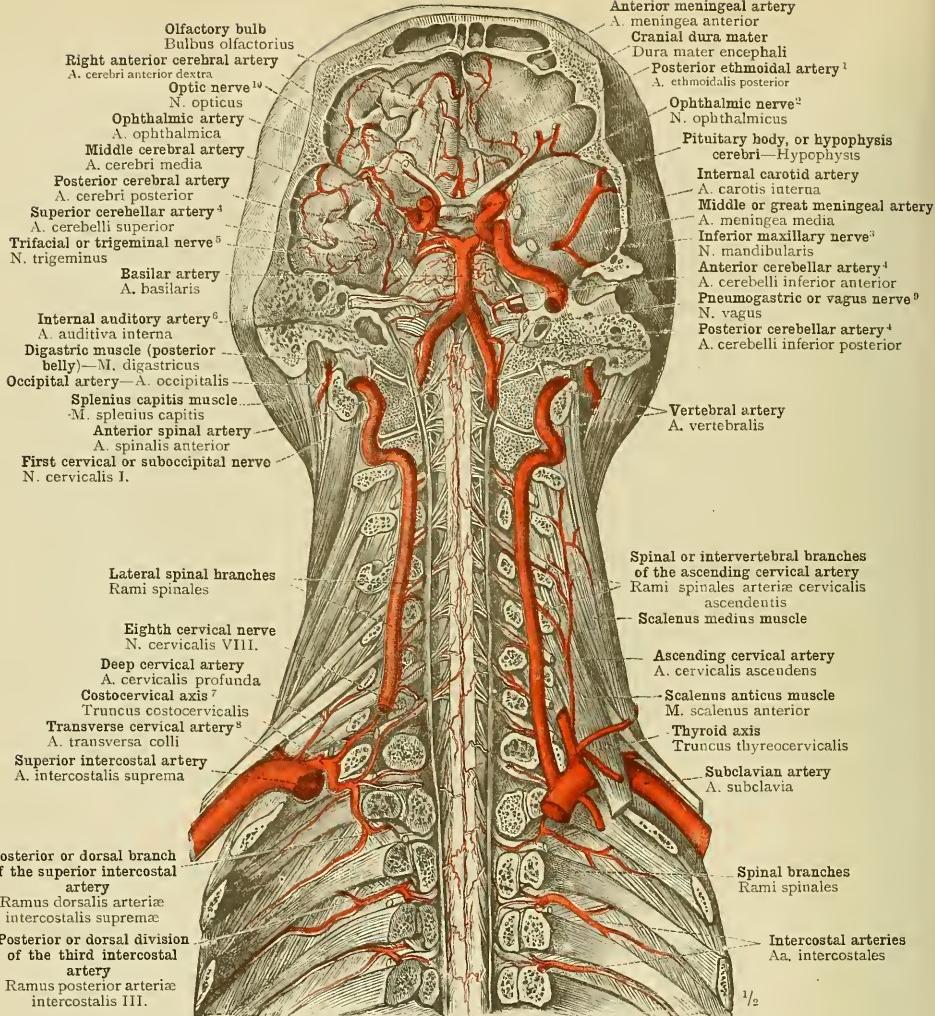
¹ See Appendix, note 164.² See Appendix, note 192.³ See Appendix, note 184.⁴ See Appendix, note 179.⁵ See Appendix, note 183.⁶ Or ganglion of the fifth cranial (trifacial or trigeminal) nerve.⁷ See Appendix, note 194.

FIG. 1010.—THE THIRD, TERMINAL, OR INTRACRANIAL PORTION OF THE INTERNAL CAROTID ARTERY, ARTERIA CAROTIS INTERNA, AND THE DISTRIBUTION OF THE OPHTHALMIC ARTERY, ARTERIA OPHTHALMICA; SEEN FROM ABOVE. THE MIDDLE MENINGEAL ARTERY SENDS AN OFFSET TO THE LACHRYMAL GLAND THROUGH THE OUTER WALL OF THE ORBIT (A COMMON VARIETY—see Appendix, note 106). ON THE LEFT SIDE, THE POSTERIOR ETHMOIDAL ARTERY IS LARGER THAN THE ANTERIOR ETHMOIDAL, AND CROSSES ABOVE (INSTEAD OF BELOW) THE SUPERIOR OBlique OR TROCHLEARIS MUSCLE (VAR.).

The roof of the right orbit, and the roof and the upper part of the outer wall of the left orbit, were removed. The scalp having been separated from the subjacent squamous portion of the frontal bone and turned forwards and a little downwards, the branches of the ophthalmic artery, arteria ophthalmica, emerging from beneath the orbital arch or supra-orbital margin, margo supra-orbitalis, were exposed: these branches are, the supra-orbital artery, arteria supra-orbitalis; the frontal artery, arteria frontalis; and the nasal branch, arteria dorsalis nasi (see Appendix, note 164). On the right side, the levator palpebrae superioris muscle, the superior rectus muscle, and the superior oblique or trochlearis muscle were in part removed, and their proximal segments were turned backwards, in order to expose the entire course of the ophthalmic artery, arteria ophthalmica, its offsets to the orbital muscles, rami musculares (see Appendix, note 192), and to the eyeball, and the origin of the ethmoidal arteries (see Appendix, note 183). The right anterior ethmoidal or internal nasal artery was laid bare from its origin up to its point of emergence from the cranial cavity; by the partial removal of the roof of the sphenoidal sinus, its mucoperosteum being left intact, the ramification in the substance of this membrane of the branches of the posterior ethmoidal artery was displayed.

Arteries of the Orbit, and of the Anterior and Middle Cranial Fossæ.



¹ See Appendix, note 184.

² Or first division of the fifth cranial (trifacial or trigeminal) nerve.

³ Or third division of the fifth cranial (trifacial or trigeminal) nerve.

⁴ Called by Quain the auditory artery without qualification.

⁵ Or posterior scapular artery (Macalister); and see Appendix, note 172.

⁶ Or tenth cranial nerve, according to Soemering's enumeration. (According to that of Willis, the *par vagum* of the eighth cranial nerve.)—T₈

⁷ Or second cranial nerve.

⁴ See Appendix, note 155.

⁷ See Appendix, note 177.

⁵ Or fifth cranial nerve.

FIG. 1011.—IN THE THORAX, THE BODIES OF THE VERTEBRÆ WITH THE HEADS OF THE RIBS HAVE BEEN REMOVED; IN THE NECK, THE BODIES OF THE VERTEBRÆ AND THE ANTERIOR LIMBS OF THE TRANSVERSE PROCESSES (*i.e.*, the COSTAL PROCESSES), SO AS TO EXPOSE THE VERTEBRAL ARTERY, AND, AFTER CUTTING AWAY THE ANTERIOR PORTION OF THE SPINAL DURA MATER, THE SPINAL BRANCHES OF THE VERTEBRAL ARTERY AND THE SPINAL OR INTERVERTEBRAL BRANCHES OF THE ASCENDING CERVICAL ARTERY. IN THE HEAD, THE GREATER PART OF THE BASE OF THE SKULL HAS BEEN CUT AWAY, AND ON THE RIGHT SIDE THE EXPOSED PORTION OF THE CRANIAL DURA MATER HAS ALSO BEEN REMOVED, SO AS TO LAY BARE THE ARTERIES OF THE BASE OF THE BRAIN. SEEN FROM BEFORE. THE INTERNAL AUDITORY ARTERY, ARTERIA AUDITIVA INTERNA (see note ⁶ above), ARISES IN THIS SPECIMEN FROM THE ANTERIOR CEREBELLAR ARTERY, ARTERIA CEREBELLI INFERIOR ANTERIOR (see Appendix, note 195), INSTEAD OF, AS NORMALLY, DIRECTLY FROM THE BASILAR ARTERY. THIS IS A COMMON VARIETY.

A. vertebralis, the vertebral artery. A. basilaris, the basilar artery. A. carotis interna, the internal carotid artery.

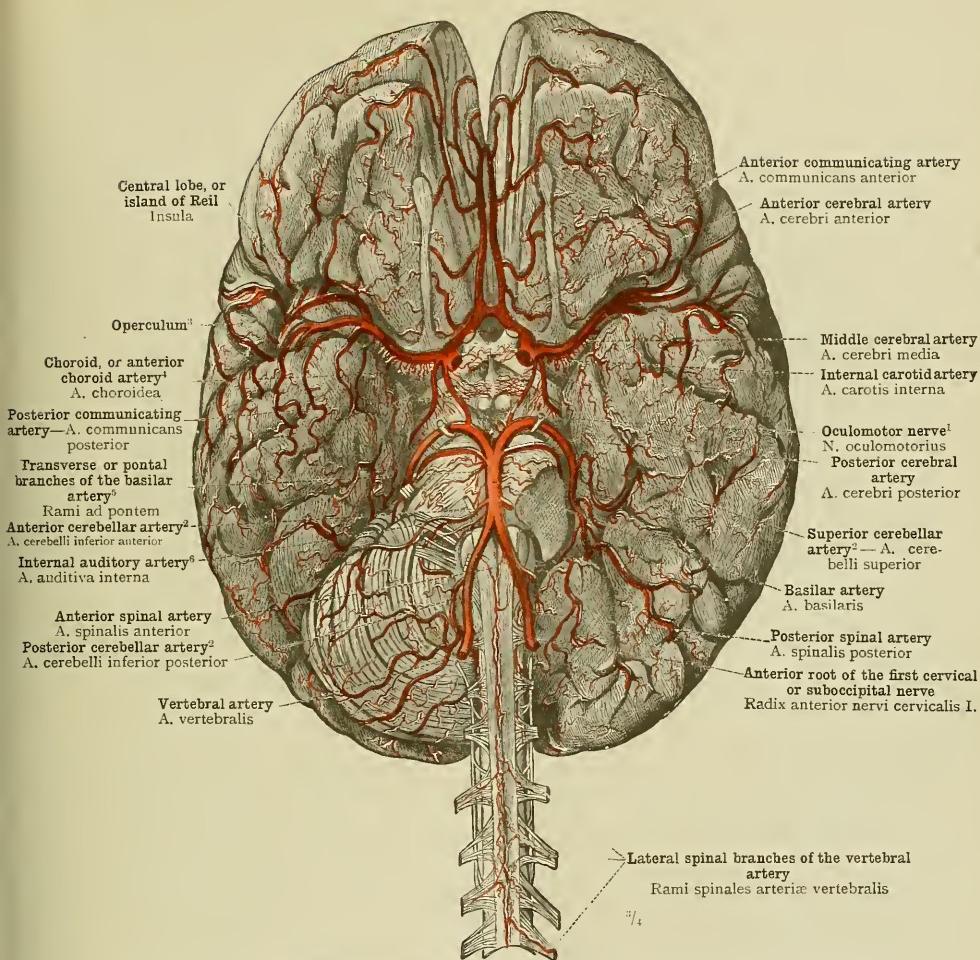
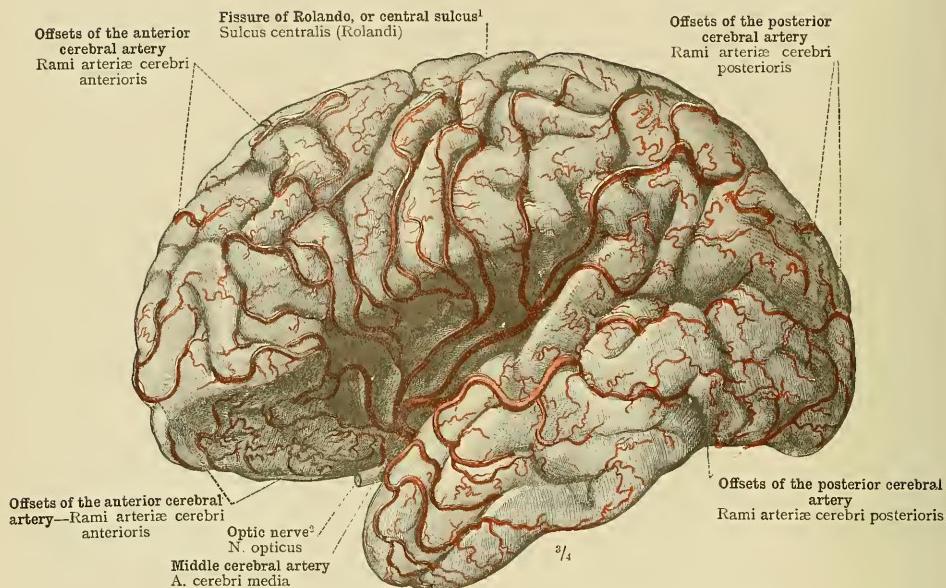


FIG. 1012.—THE ARTERIES OF THE BASE OF THE BRAIN; THE CIRCLE OF WILLIS, CIRCULUS ARTERIOSUS (WILLISI).

The frontal lobes were drawn a little apart, in order to display the two anterior cerebral arteries as far as the genu of the corpus callosum; the right fissure of Sylvius, fissura cerebri lateralis dextra, was opened up to some extent, in order to trace the ramification of the middle cerebral artery. After the removal of the left hemisphere of the cerebellum, the ramification of the posterior cerebral artery on the basal (inferior) surface of the temporal and occipital lobes was exposed.

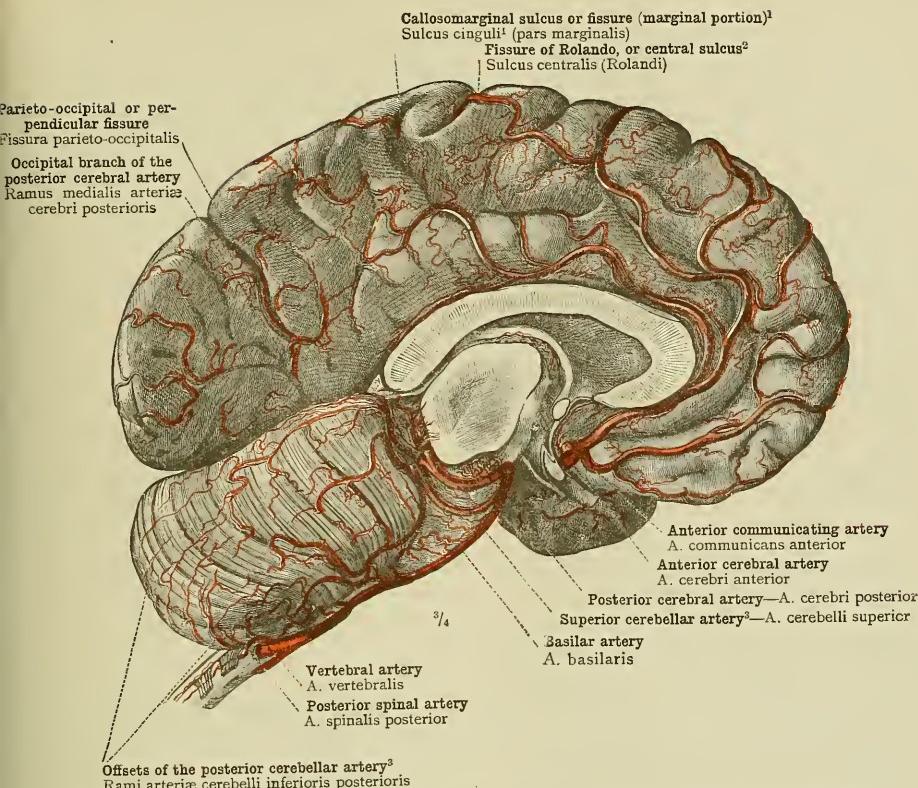
Arteries of the Brain.



¹ *Fissure of Rolando.*—If the use of the term *fissure* be restricted, according to the usage of some authorities, to those slits that involve the whole thickness both of the gray and the white substance of the brain, and thus affect the foot of the lateral ventricle or give rise to eminences projecting from its walls, the *central sulcus* does not come within that category. It is, on the other hand, one of the primary slits, one of those that are already apparent in the sixth month of intra-uterine life; and, moreover, it is an *interlobar sulcus*, constituting the boundary on the outer surface of the hemisphere between the frontal and the parietal lobes. Hence it is usually distinguished by the title of *fissure*, and is seldom spoken of as the *furrow of Rolando*.—Tr.
² Or second cranial nerve.

FIG. 1013.—THE RAMIFICATION OF THE CEREBRAL ARTERIES, ARTERIÆ CEREBRI, ON THE CONVEX (OUTER) SURFACE OF THE LEFT CEREBRAL HEMISPHERE AND THE CENTRAL LOBE OR ISLAND OF REIL, AND ALSO ON THE BASAL (INFERIOR) SURFACE OF THE FRONTAL LOBE. THE LEFT HEMISPHERE OF THE CEREBRUM, SEEN FROM THE OUTER SIDE.

The fissure of Sylvius, fissura cerebri lateralis (Sylvii), was widely opened by the separation of the adjoining lobes of the cerebral hemisphere, in order to display the ramification of the middle cerebral artery, arteria cerebri media, at the bottom of the fissure.



¹ *Sulcus Cinguli.*—This term is not used by English anatomists. The *callosal convolution*, *gyrus forniciatus*, is in England sometimes termed *gyrus cinguli*, and this latter name is used by the author to distinguish what he calls the "upper portion of the *gyrus forniciatus*," the convolution on the inner (mesial) surface of the hemisphere immediately above the corpus callosum or great commissure. The *gyrus cinguli* is bounded above by the *sulcus cinguli*, the *callosomarginal sulcus* of English authors; and this is divided by Toldt into a *pars marginalis* and a *pars subfrontalis*, *marginal* and *subfrontal* portions, the terms being self-explanatory. The posterior portion was called by Wilder the *paracentral fissure*; the anterior portion, which is parallel with the genu of the corpus callosum, the *preflimbic fissure*.—*Tk.*

See note 1 to p. 624.

3 See Appendix, note 195.

FIG. 1014.—THE DISTRIBUTION OF THE ANTERIOR AND POSTERIOR CEREBRAL ARTERIES, ARTERIAE CEREBRI ANTERIOR ET POSTERIOR, ON THE INTERNAL (MESIAL) SURFACE OF THE LEFT HEMISPHERE OF THE CEREBRUM; AND ALSO THE RAMIFICATION OF THE SUPERIOR AND POSTERIOR CEREBELLAR ARTERIES, ARTERIAE CEREBELLI SUPERIOR ET INFERIOR POSTERIOR (see Appendix, note 195), ON THE UPPER SURFACE OF THE RIGHT HEMISPHERE OF THE CEREBELLUM. THE POSTERIOR SPINAL ARTERY, ARTERIA SPINALIS POSTERIOR; THE VERTEBRAL ARTERY, ARTERIA VERTEBRALIS; AND THE BASILAR ARTERY, ARTERIA BASILARIS.

The corpus callosum or great commissure having been divided longitudinally in the median plane, the right hemisphere of the cerebrum was removed by a section passing through its peduncle (the right crus cerebri), in order to display the course and distribution of the anterior and posterior cerebral arteries, arteriae cerebri anterior et posterior, and also to expose the branches of the posterior cerebral artery that enter the isthmus of the brain as well as those passing to the velum interpositum or tela choroidea superior (tela choroidea ventriculi tertii).

Arteries of the Brain.

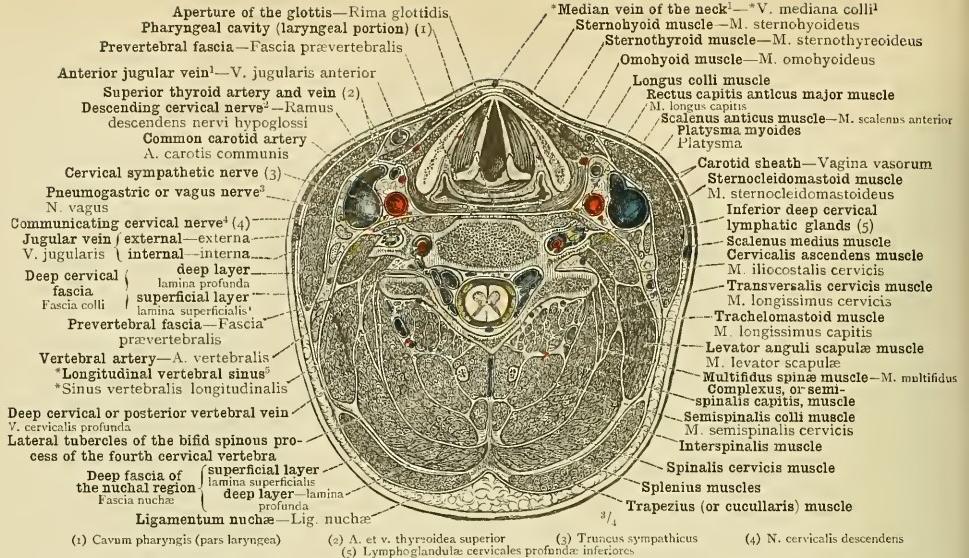


FIG. 1015.—TRANSVERSE SECTION THROUGH THE NECK, AT THE LEVEL OF THE APERTURE OF THE GLOTTIS, AND PASSING THROUGH THE BODY OF THE FIFTH CERVICAL VERTEBRA; UPPER SURFACE OF THE LOWER SEGMENT.

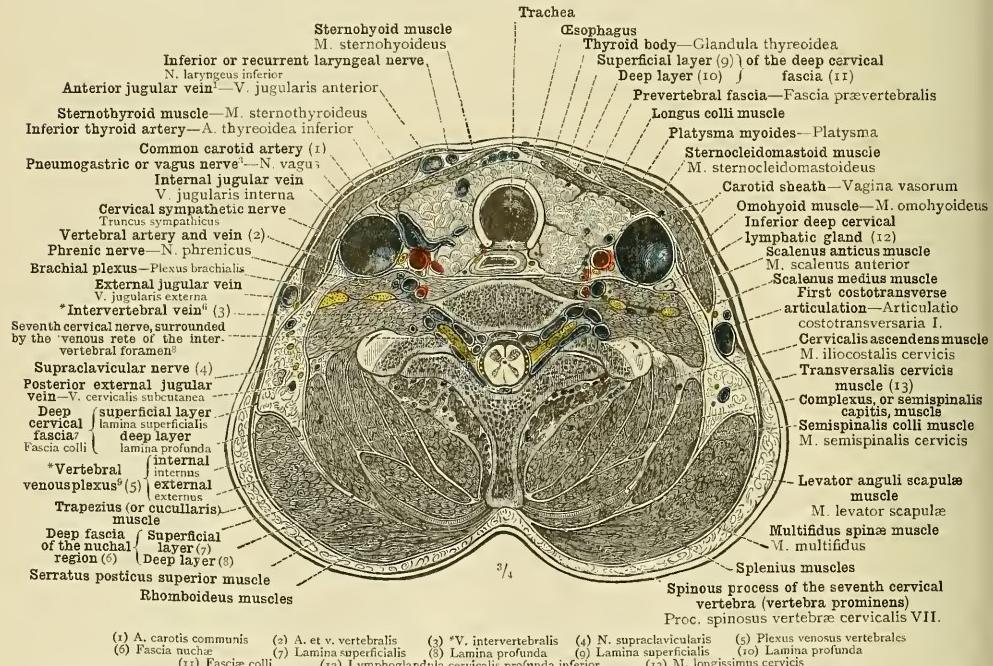


FIG. 1016.—TRANSVERSE SECTION THROUGH THE NECK, PASSING THROUGH THE SPINE NEAR THE LOWER SURFACE OF THE BODY OF THE SEVENTH CERVICAL VERTEBRA (VERTEBRA PROMINENS). UPPER SURFACE OF THE LOWER SEGMENT.

¹ See Appendix, note 197.

² See Appendix, note 198.
³ Or tenth cranial nerve, according to Soemmerring's enumeration. (According to that of Willis, the *par vagum* of the eighth cranial nerve.)—TR.

⁴ See Appendix, note 199.

⁵ See Appendix, note 200.

⁶ See note 5 to p. 667.

⁷ See note 1 to p. 665.

ARTERIÆ EXTREMITATUM
SUPERIORUM ET INFERIORUM

THE ARTERIES OF THE
UPPER AND LOWER EXTREMITIES

Innominate (or brachiocephalic) artery—A. anomia
 Subclavian artery—A. subclavia
 Internal mammary artery—A. mammaria interna
 Vertebral artery—A. vertebralis

Thyroid axis—Truncus thyrocervicalis.
 Scalenus anticus muscle—M. scalenus anterior
 Suprascapular artery—A. transversa scapulae

Transverse cervical artery 3—A. transversa collis

Clavicular branch of the
 acromiothoracic artery
 Ramus subclavius

Axillary artery—A. axillaris
 Thoracic or pectoral branch
 Ramus pectoralis

Acrosternal branch
 Ramus acromialis

Descending or humeral branch
 Ramus deltoideus

Median nerve
 N. medianus

Acromiothoracic
 artery⁴
 A. thoraco-acro-
 mialis

Anterior circumflex artery (of the arm)

Arteria circumflexa humeri anterior

Posterior circumflex artery (of the
 arm)—Arteria circumflexa humeri

posterior

Subscapular artery¹
 A. subscapularis

Dorsal branch of
 the subscapular
 artery⁵
 A. circumflexa
 scapulae

Brachial artery
 A. brachialis

Subscapular or thoracodorsalis artery¹
 A. thoracodorsalis

Long thoracic artery⁶
 A. thoracalis lateralis

External mammary branches⁶
 Rami mammarii

¹ See Appendix, note 203.

² Known also as the transverse scapular or transverse humeral artery.

³ Or posterior scapular artery (Macalister). See Appendix, notes 134, 135, 175, and 203.

⁴ Called by Macalister the thoraco-acromial artery.

⁵ Often called the *dorsalis scapulae* artery. See also Appendix, note 203.

⁶ See Appendix, note 204.

FIG. 1017.—RIGHT SUBCLAVIAN AND AXILLARY ARTERIES AND THEIR RELATION TO THE BRACHIAL PLEXUS; SEEN FROM THE FRONT AND THE INNER SIDE. THE DIVISION OF THE INNOMINATE (OR BRACHIOCEPHALIC) ARTERY INTO RIGHT SUBCLAVIAN AND COMMON CAROTID ARTERIES. *THORACIC PORTION OF THE SUBCLAVIAN ARTERY (see Appendix, note 205), WITH THE ORIGIN OF THE VERTEBRAL ARTERY, THE THYROID AXIS, AND THE INTERNAL MAMMARY ARTERY; THE CERVICAL (THIRD) PORTION OF THE SUBCLAVIAN ARTERY (see Appendix, note 205), WITH THE ORIGIN OF THE TRANSVERSE CERVICAL ARTERY.

Of the branches of the axillary artery (see Appendix, note 206) we see: the branches of the acromiothoracic artery, arteria thoraco-acromialis, the thoracic or pectoral branch, ramus pectoralis, the clavicular branch, rami subclavius, the acromial branch, rami acromialis, and the descending or humeral branch, ramus deltoideus; the long thoracic artery, arteria thoracalis lateralis; the (long) subscapular artery, arteria subscapularis, and its division into the dorsal scapular artery, arteria circumflexa scapulae, and the thoracodorsalis artery, arteria thoracodorsalis (see Appendix, note 203); the anterior and posterior circumflex arteries (of the arm), arteriae circumflexae humeri, anterior et posterior.

A. subclavia, the subclavian artery; A. axillaris, the axillary artery.

1/2

1/2

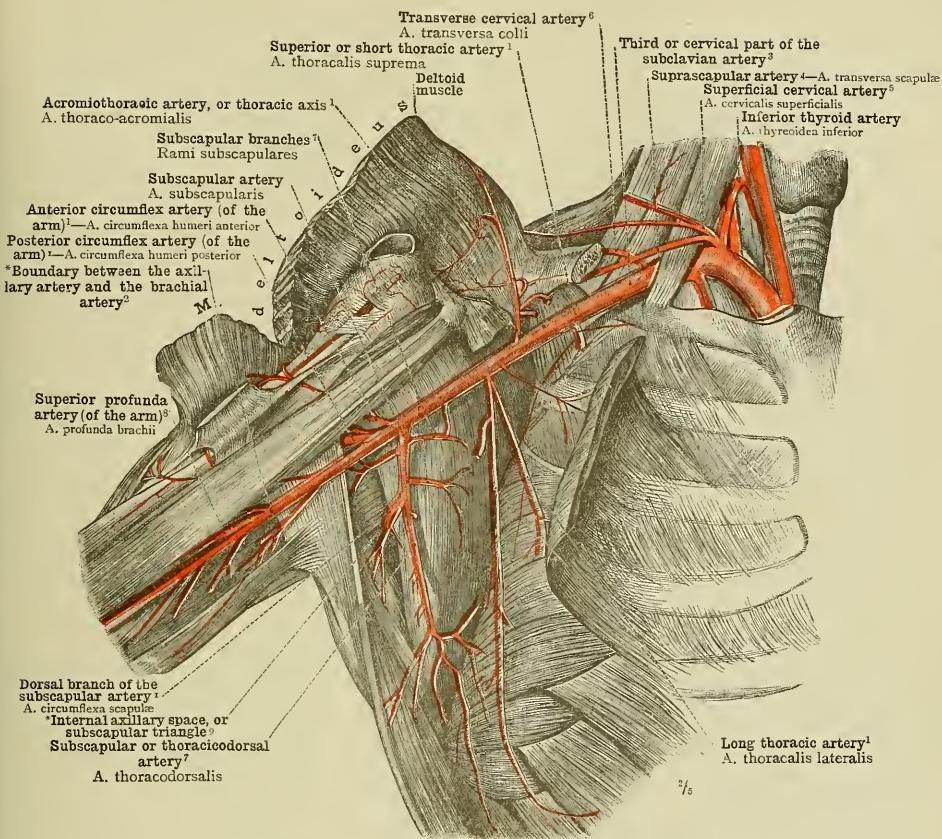
¹ See Appendix, note 206.² See Appendix, note 207.³ See Appendix, note 205.⁴ Known also as the *transverse scapular* or *transverse humeral artery*.⁵ See Appendix, note 208.⁶ See Appendix, notes 134, 135, 172, and 206.⁷ See Appendix, notes 203 and 206.⁸ See Appendix, note 209.⁹ See Part III. of this work, p. 312, Fig. 559, and note ¹ to same page.

FIG. 1018.—THE DISTRIBUTION OF THE BRANCHES OF THE AXILLARY ARTERY AS SEEN AFTER THE ANTERIOR WALL OF THE AXILLA AND THE BRACHIAL PLEXUS HAVE BEEN ENTIRELY REMOVED; SEEN FROM THE FRONT AND THE INNER SIDE. THE SUPERIOR OR SHORT THORACIC ARTERY, ARTERIA THORACICA SUPREMA; THE LONG THORACIC ARTERY, ARTERIA THORACALIS LATERALIS; THE ACROMIOThorACIC ARTERY, OR THORACIC AXIS, ARTERIA THORACO-ACROMIALIS; THE SUBSCAPULAR ARTERY, ARTERIA SUBSCAPULARIS, GIVING OFFSETS TO THE SUBSCAPULARIS MUSCLE, RAMI SUBSCAPULARES, AND DIVIDING (see Appendix, notes 203 and 206) INTO THE ARTERIA THORACODORSALIS (CONTINUATION OF THE SUBSCAPULAR ARTERY, OR THORACODORSAL ARTERY) AND THE ARTERIA CIRCUMFLEXA SCAPULE (DORSAL BRANCH OF THE SUBSCAPULAR ARTERY, OR DORSALIS SCAPULÆ ARTERY); THE ANTERIOR AND POSTERIOR CIRCUMFLEX ARTERIES (OF THE ARM), ARTERIE CIRCUMFLEXE HUMERI ANTERIOR ET POSTERIOR.

In the preparation shown in Fig. 1017, the sternal extremity of the clavicle and the pectoralis major muscle were removed; the pectoralis minor muscle was cut across, its inner segment being turned towards the median line, and the brachial plexus was removed. The arm was abducted, a transverse incision was made into the anterior border of the deltoid muscle, and this muscle was turned outwards, in order to display the course of the anterior circumflex artery (of the arm) and its anterior articular branch. Regarding the branches of the axillary artery, see Appendix, note 206; and regarding the parts of the axillary artery, see Appendix, note 207.

A. subclavia, the subclavian artery; A. axillaris, the axillary artery.

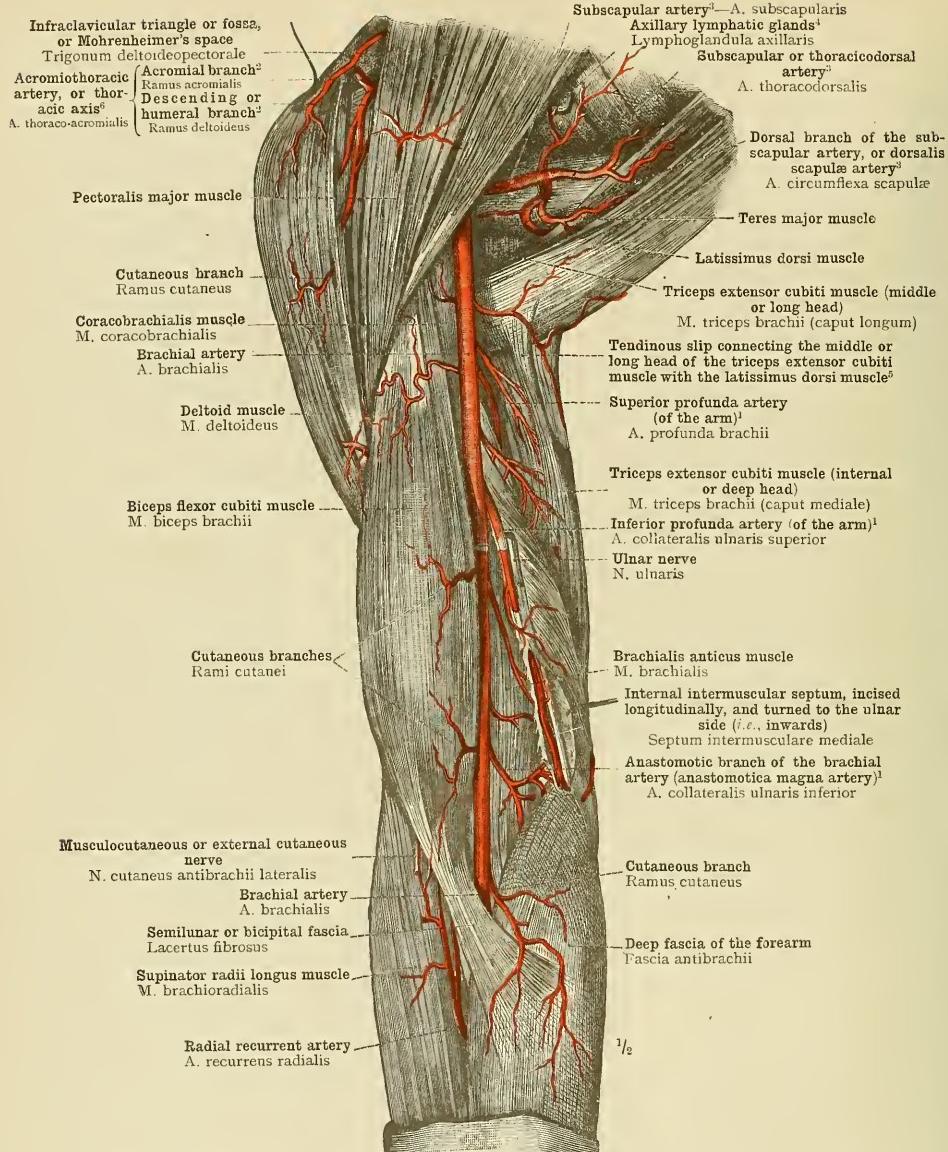
¹ See Appendix, note 200.² See Appendix, note 206.³ See Appendix, notes 203 and 206.⁴ This, being one of the glands lying on the serratus magnus muscle at the lower border of the pectoral muscles, belongs to the *pectoral group of axillary lymphatic glands* (Quain).—Tr.⁵ This slip is vestigial in nature, representing the *dorsso-epitrochlearis* or *accessorius tricipitis* muscle which is commonly met with in quadrumanous, and exists in many other mammals. (See Quain, *op. cit.*, vol. ii., pp. 206 and 221, and Macalister, *op. cit.*, p. 290.)—Tr.⁶ Called by Macalister the *thoraco-acromial artery*. See Appendix, note 206.

FIG. 1019.—THE ARTERIES OF THE RIGHT UPPER ARM, SHOULDER, AND AXILLARY REGION; SEEN FROM THE FRONT AND THE INNER SIDE.

Regarding the branches of the brachial artery, see Appendix, note 209; and regarding the upper limit of the brachial artery, see Appendix, note 210.

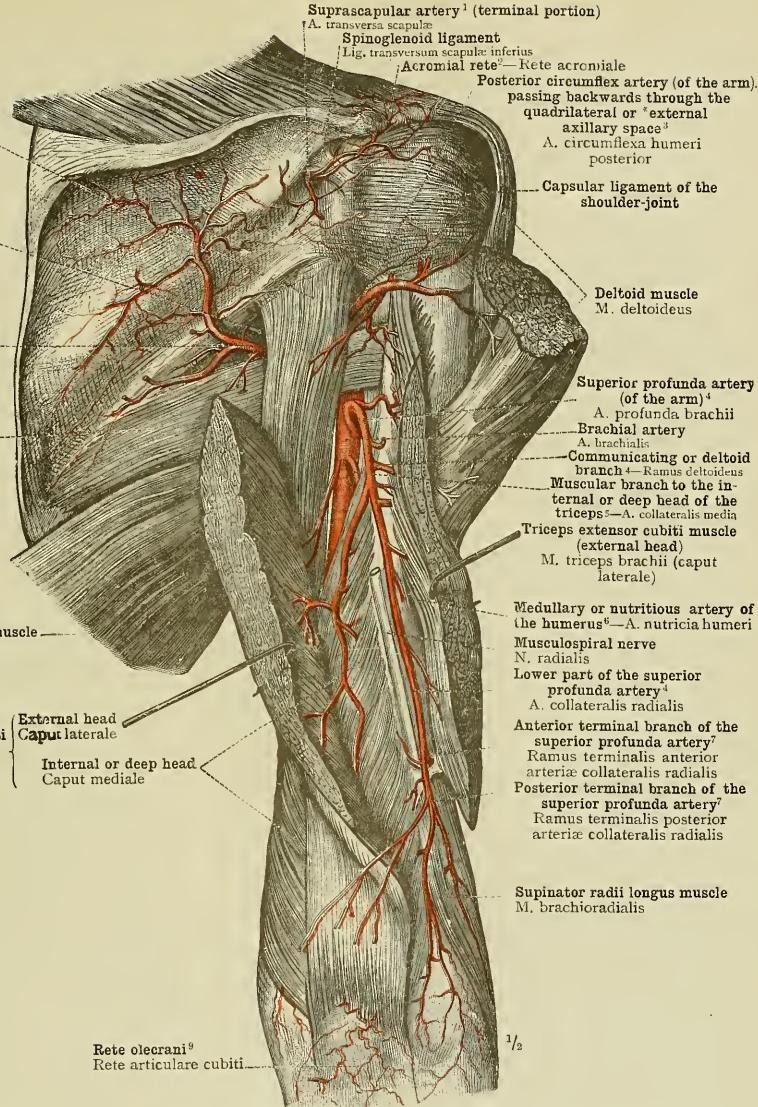
¹ Known also as the *transverse scapular* or *transverse humeral artery*.² See note ¹ to p. 312 in Part III.⁴ See Appendix, note 170.⁵ See Appendix, note 209.⁵ Arising in this instance direct from the brachial artery, instead of, as normally, from the superior profunda artery. See Appendix, note 209.⁶ This is the *medullary or nutritive branch* of the superior profunda artery, not the *chief medullary artery* of the humerus, which enters a foramen somewhat lower down in the shaft of the humerus. See Appendix, note 209.⁷ See Appendix, note 211.⁸ See Appendix, notes 203 and 206.⁹ See Appendix, note 212.

FIG. 1020.—THE DEEP ARTERIES AT THE BACK OF THE RIGHT UPPER ARM AND THE RIGHT SHOULDER; THE ARTERIAL NETWORK OF THE ELBOW, RETE OLECRANI OR RETE ARTICULARE CUBITI (see Appendix, note 212).

The posterior part of the deltoid muscle was removed, in addition to the infraspinatus and teres minor muscles, and the external head of the triceps extensor cubiti muscle was divided by a longitudinal incision, the parts being widely separated.

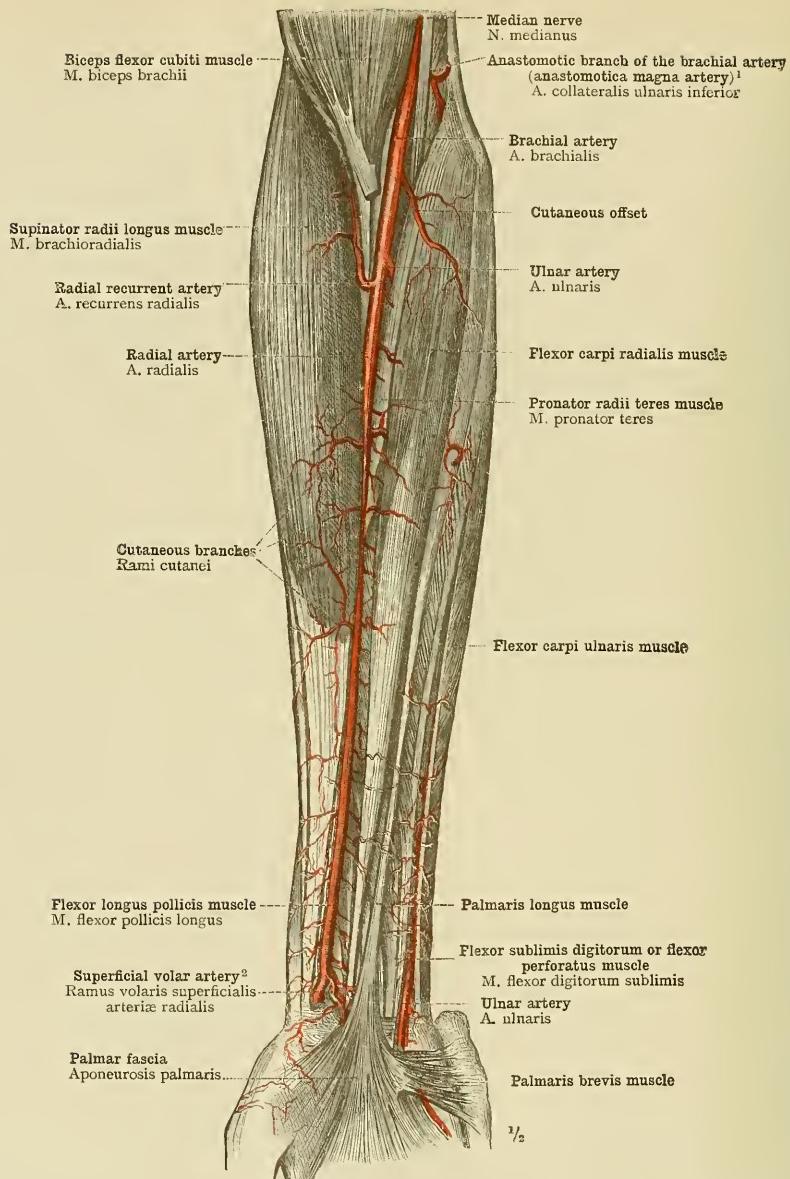
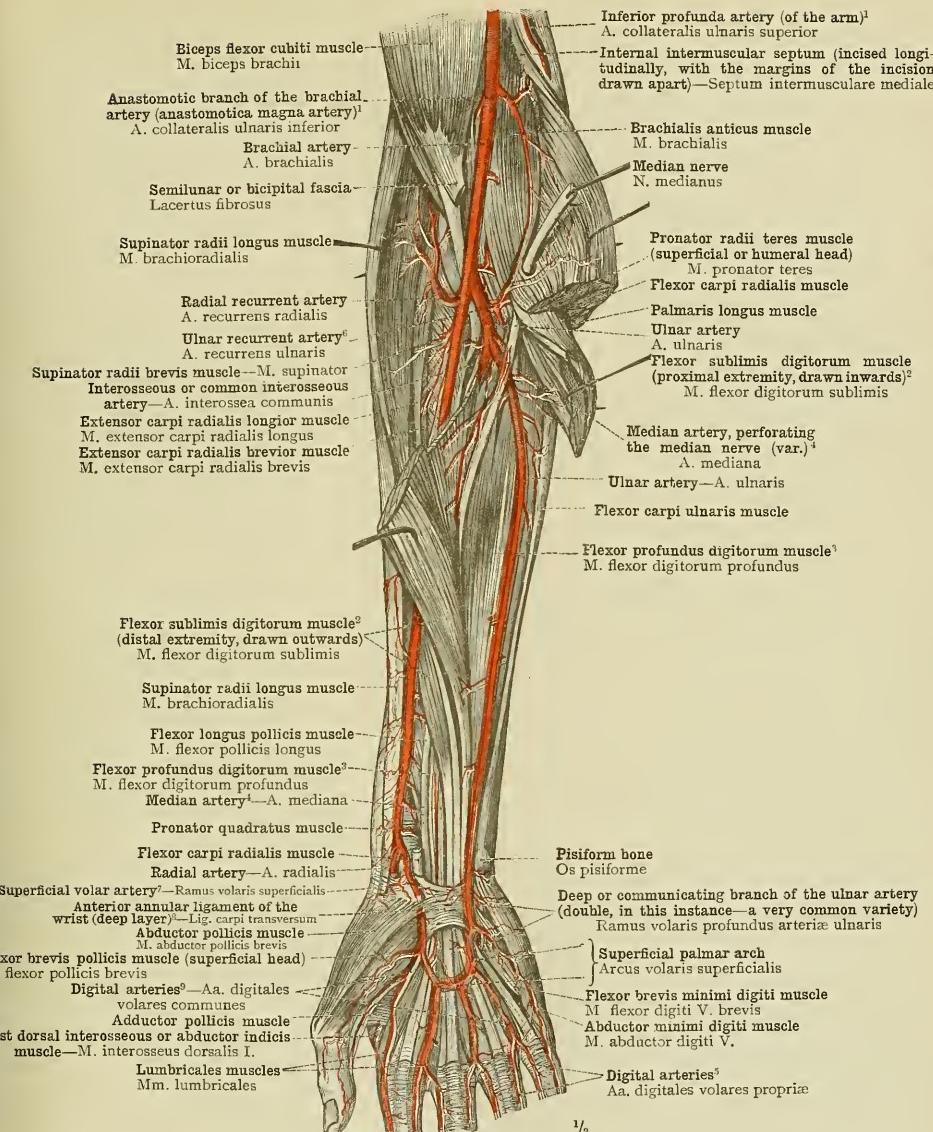
¹ See Appendix, note 269.² Often known in England by the Latin name of *superficialis volae artery*.—TR.

FIG. 1021.—THE SUPERFICIAL ARTERIES OF THE ANTECUBITAL FOSSA AND THE PALMAR SURFACE OF THE RIGHT FOREARM.

Palmar Arteries of the Forearm and the Hand.



¹ See Appendix note 209.

⁴ Median Artery.—Callo-

6 The anterior ulnar recurrent artery is a variety of frequent occurrence.—TR.

⁷ See note ² to p. 632.

β Or flexor perforatus muscle

² Or flexor perforatus muscle uses nervi mediani artery.

and the posterior ulnar recurrent.

⁸ See Appendix, note 214.

3. *Or flexor perforans* muscle.

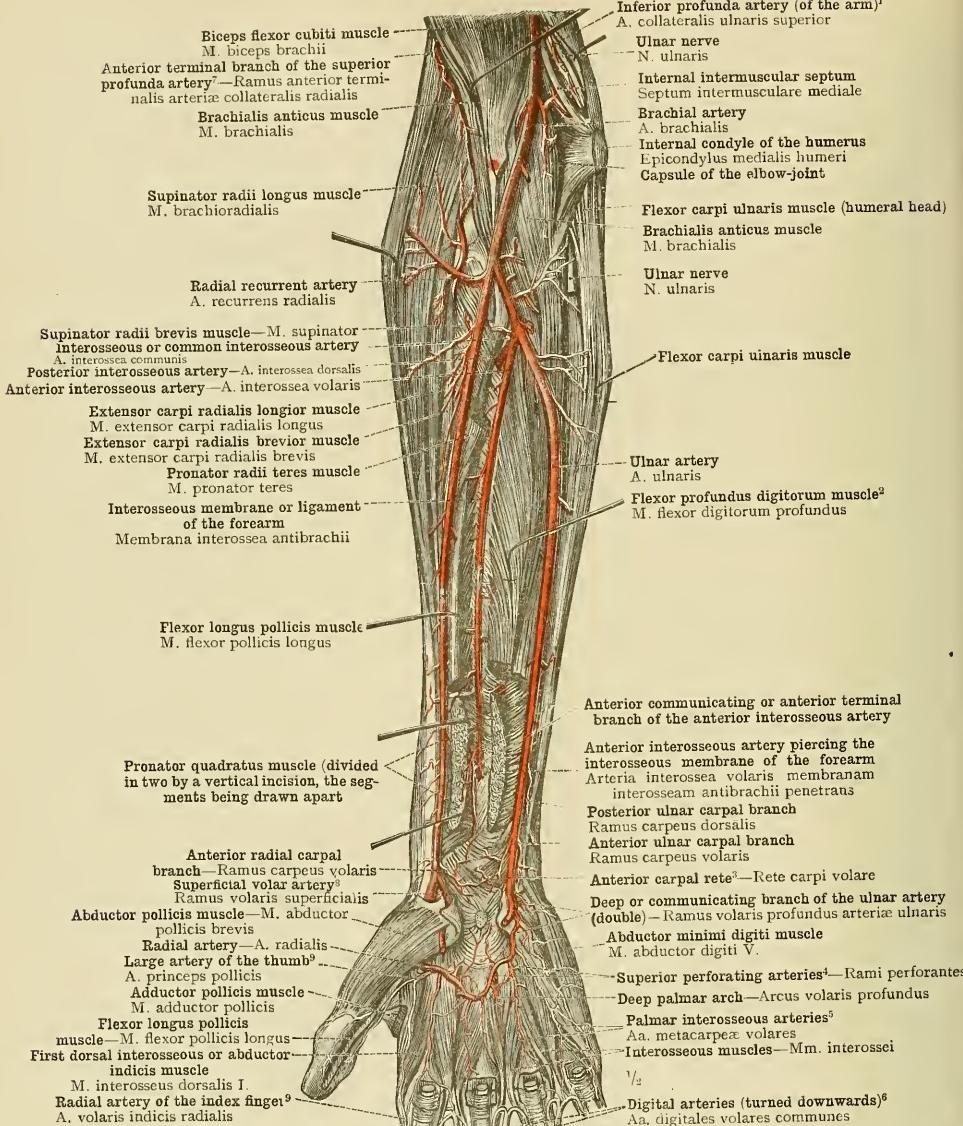
al digital arteries, see Appendix, note 213.

where seen arising by a common stem. This

⁹ See Appendix, note 213.

FIG. 1022.—THE RADIAL AND ULRNAR ARTERIES AND THE SUPERFICIAL PALMAR ARCH.

The unusually large median artery (comes nervi mediani artery) perforates in this specimen the median nerve.



¹ See Appendix, note 209.
⁵ Called by Macalister the descending digital branches of the deep palmar arch.
⁷ See Appendix, note 217.

² Or flexor perforans muscle.
³ See Appendix, note 215.
⁸ See note 2 to p. 632.

⁴ See Appendix, note 216.

⁶ See Appendix, note 213.

⁷ See Appendix, note 218.

⁹ See Appendix, note 219.

FIG. 1023.—THE ANTERIOR INTEROSSEOUS ARTERY OF THE RIGHT FOREARM AND THE DEEP PALMAR ARCH; SEEN FROM BEFORE.

Palmar Arteries of the Forearm and Hand.

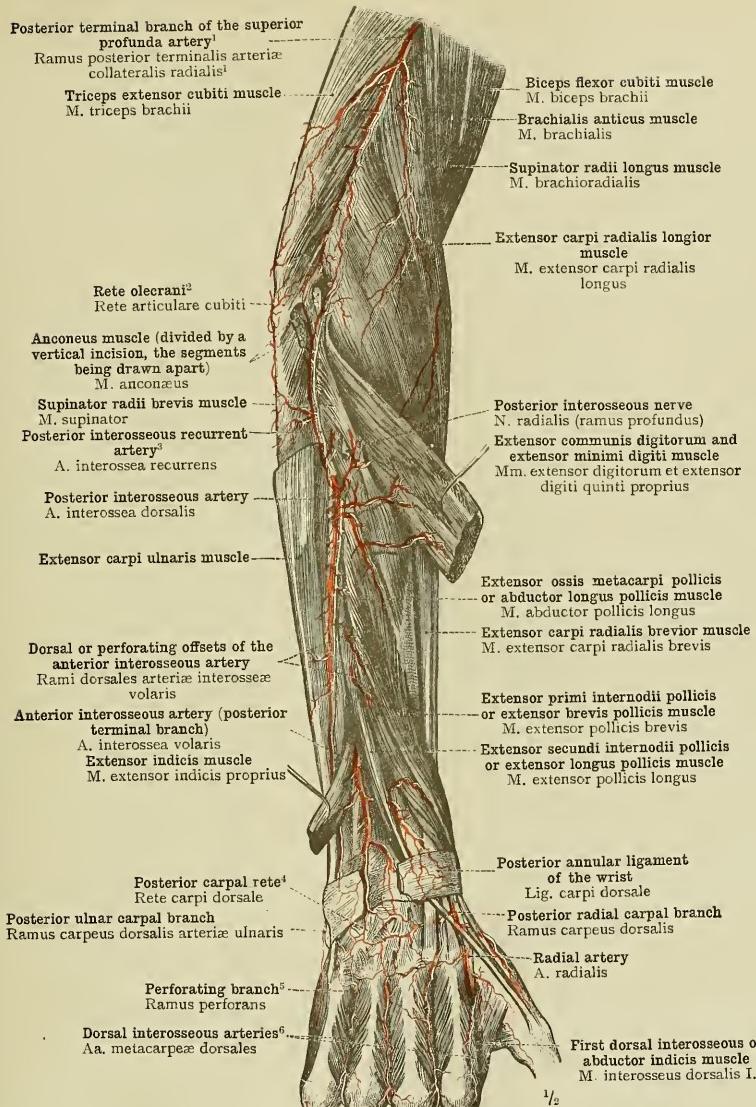
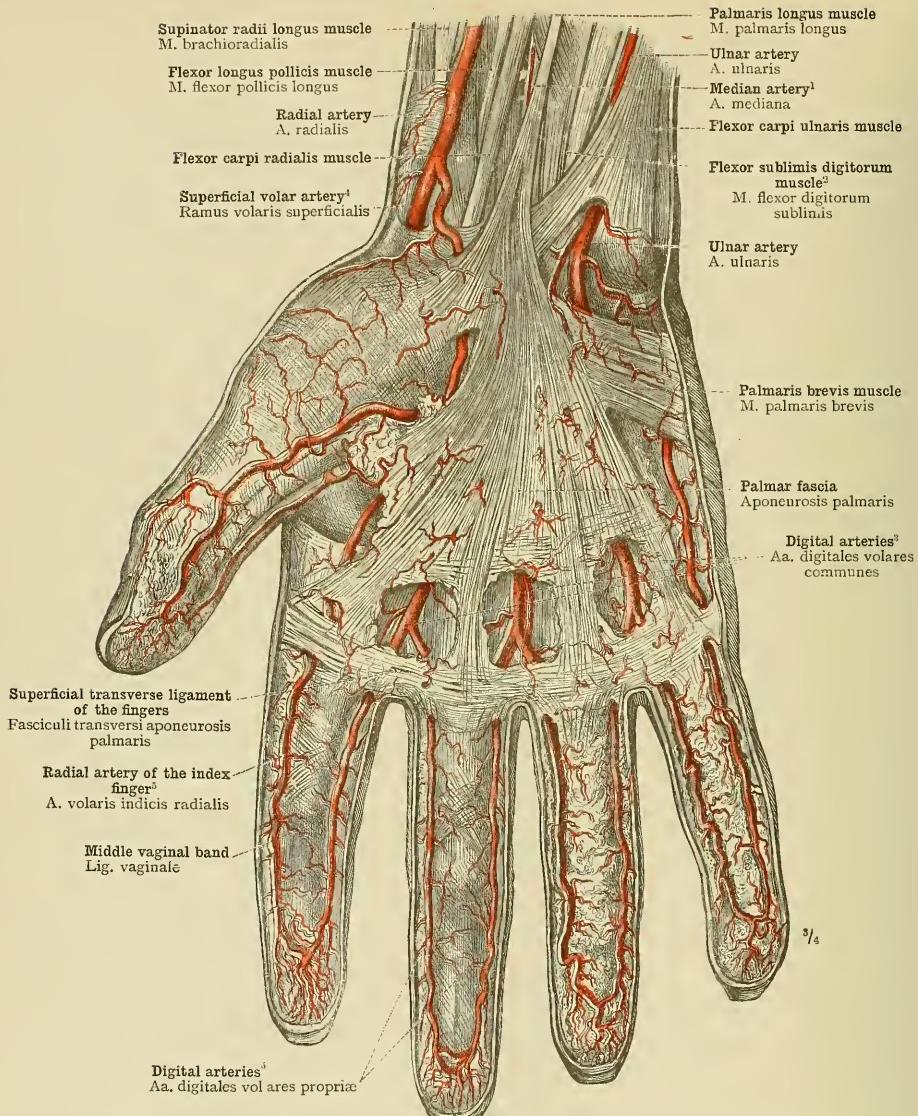
¹ See Appendix, note 217.² See Appendix, note 212.³ Often called the *interosseous recurrent* artery without further qualification, as the anterior interosseous artery gives no recurrent branch.—Tr.⁴ See Appendix, note 29.⁵ See Appendix, note 216.⁶ See Appendix, note 220.

FIG. 1024.—ARTERIAE INTEROSSEA DORSALIS ET INTEROSSEA RECURRENTES, THE POSTERIOR INTEROSSEOUS AND POSTERIOR INTEROSSEOUS RECURRENT ARTERIES; THE POSTERIOR OR POSTERIOR TERMINAL BRANCH OF THE ANTERIOR INTEROSSEOUS ARTERY, ARTERIA INTEROSSEA VOLARIS; THE DEEP ARTERIES OF THE DORSUM OF THE HAND

Dorsal Arteries of the Forearm and Hand.



¹ Called by Macalister *comes nervi mediani* artery.
² See note² to p. 632.

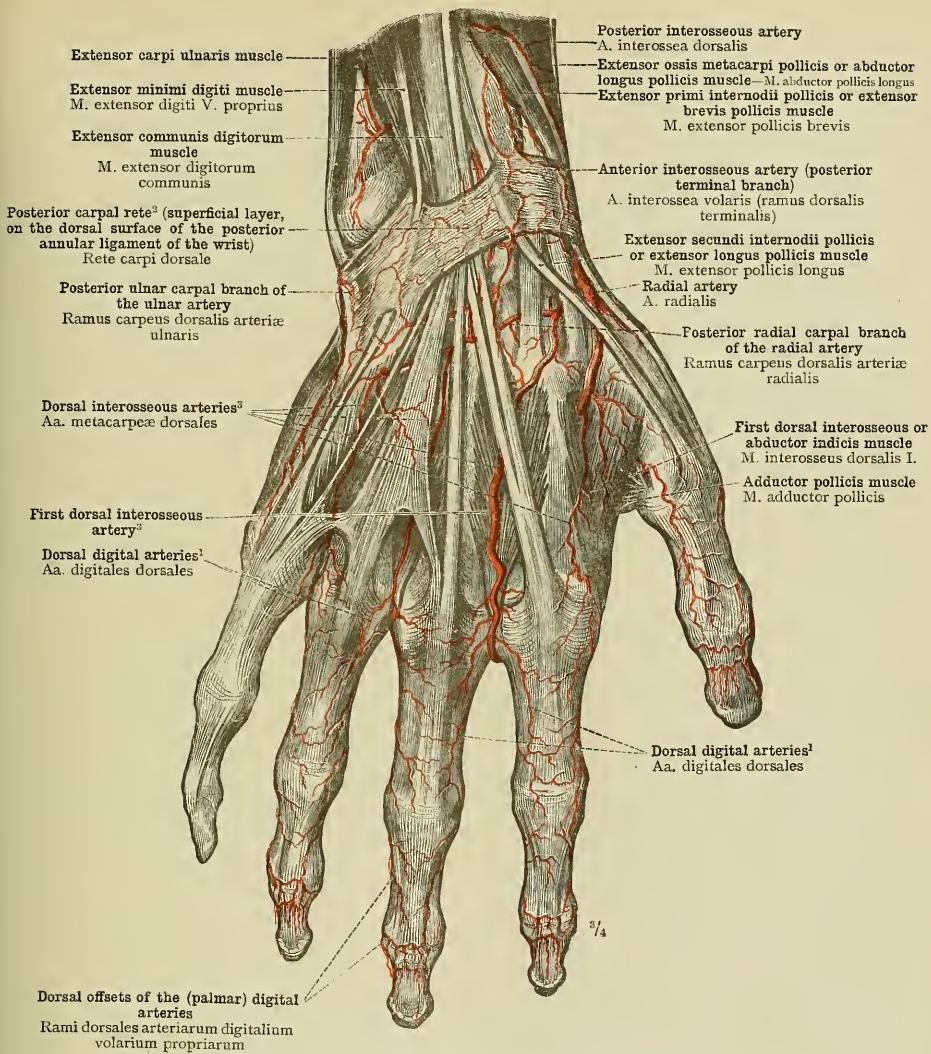
³ See Appendix, note 218.

⁴ Or *flexor perforatus* muscle.

⁵ Or *collateral digital arteries*. See Appendix, note 213.

FIG. 1025.—THE SUPERFICIAL ARTERIES OF THE PALM OF THE HAND; THE PALMAR DIGITAL ARTERIES.

In the thumb, the index, and the middle finger, the skin and the superficial fascia have been removed, thus exposing the digital sheaths of the flexor tendons (ligamenta vaginalia, etc.). In the ring and little fingers, the superficial fascia and the arteries ramifying in it have been preserved.



¹ These minute vessels are often ignored by English anatomists. See Appendix, note 213.—Tr.

² See Appendix, note 215.

³ The first dorsal interosseous artery is called by Macalister the metacarpal branch of the radial artery. For the origin of this and of the other dorsal interosseous arteries, see Appendix, note 220.—Tr.

FIG. 1026.—THE SUPERFICIAL ARTERIES OF THE DORSUM OF THE HAND: THE RADIAL ARTERY, ARTERIA RADIALIS; THE POSTERIOR RADIAL CARPAL ARTERY, RAMUS CARPEUS DORSALIS ARTERIE RADIALIS, AND THE POSTERIOR ULRNAR CARPAL ARTERY, RAMUS CARPEUS DORSALIS ARTERIE ULNARIS; THE POSTERIOR TERMINAL BRANCH OF THE ANTERIOR INTEROSSEOUS ARTERY, RAMUS DORSALIS TERMINALIS ARTERIE INTEROSSEAE VOLARIS; THE SUPERFICIAL LAYER OF THE POSTERIOR CARPAL RETE, LAMINA SUPERFICIALIS RETIS CARPI DORSALIS; THE DORSAL INTEROSSEOUS ARTERIES, ARTERIE METACARPEE DORSALES; THAT OCCUPYING THE BACK OF THE SECOND SPACE (FIRST DORSAL INTEROSSEOUS ARTERY, ACCORDING TO QUAIN; METACARPAL BRANCH OF THE RADIAL ARTERY, ACCORDING TO MACALISTER) IS UNUSUALLY LARGE (A COMMON VARIETY). THE DORSAL DIGITAL ARTERIES, ARTERIE DIGITALES DORSALES, AND THE DORSAL OFFSETS OF THE PALMAR DIGITAL ARTERIES, RAMI DORSALES ARTERIARUM DIGITALIUM VOLARIUM PROPRIARUM. THE RIGHT HAND WITH THE DISTAL EXTREMITY OF THE FOREARM; SEEN FROM BEHIND.

Arteries of the Dorsum of the Hand.

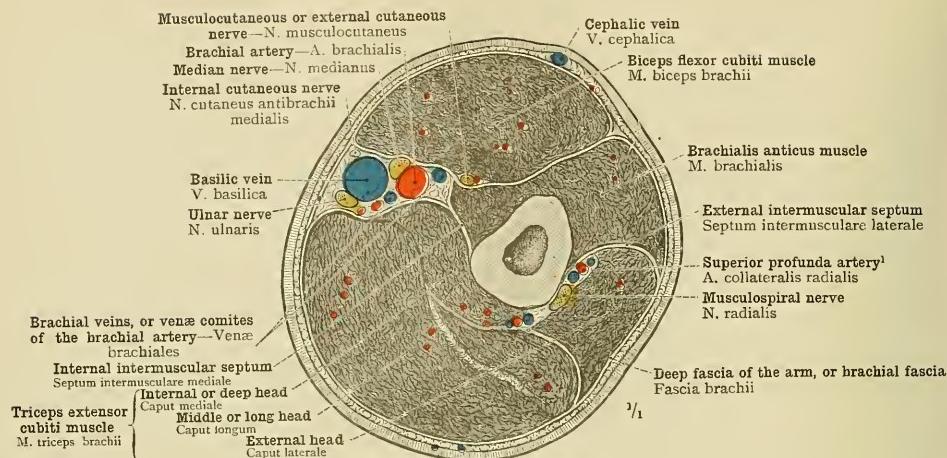


FIG. 1027.—TRANSVERSE SECTION THROUGH THE MIDDLE OF THE RIGHT UPPER ARM; UPPER SURFACE OF LOWER SEGMENT.

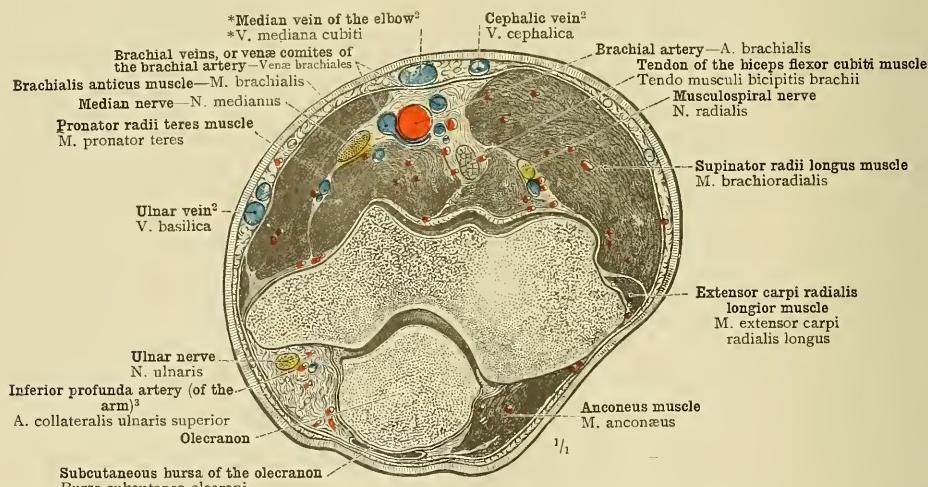


FIG. 1028.—TRANSVERSE SECTION THROUGH THE EXTENDED ELBOW-JOINT AT THE LEVEL OF THE TWO CONDYLES; UPPER SURFACE OF LOWER SEGMENT.

¹ See Appendix, notes 209 and 217.

² See Appendix, note 221.

³ See Appendix, note 209.

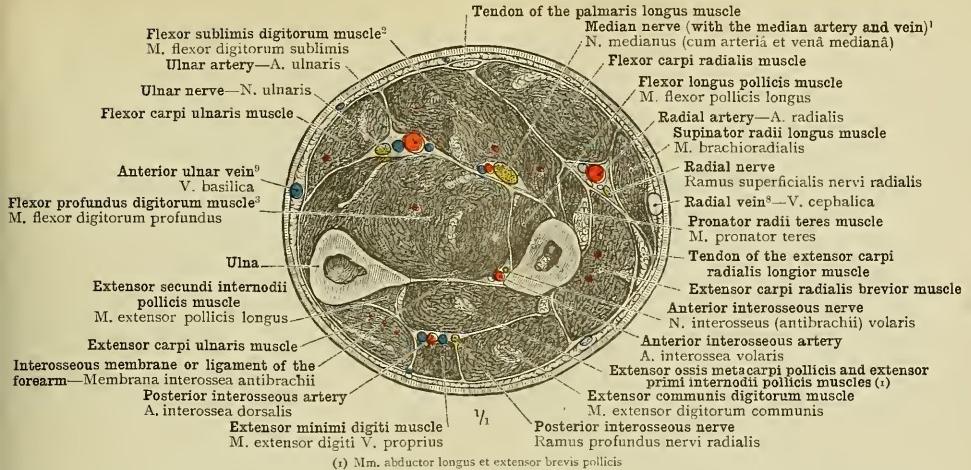


FIG. 1029.—TRANSVERSE SECTION THROUGH THE RIGHT FOREARM, A LITTLE ABOVE THE MIDDLE OF ITS VERTICAL EXTENT (AT THE LEVEL OF THE INSERTION OF THE PRONATOR RADII TERES MUSCLE); UPPER SURFACE OF LOWER SEGMENT.

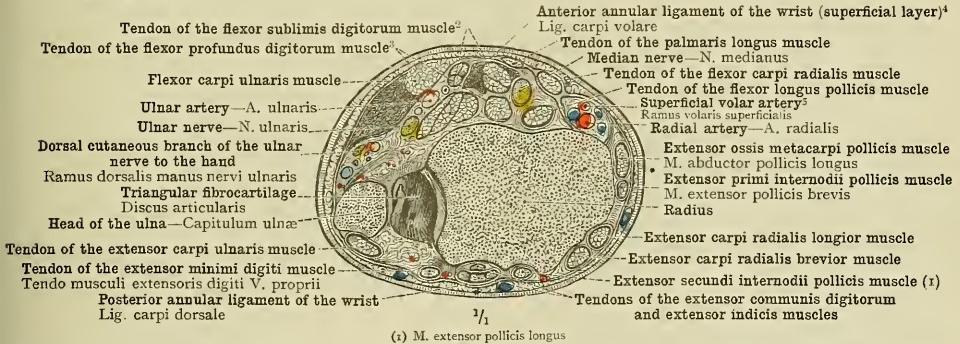


FIG. 1030.—TRANSVERSE SECTION THROUGH THE DISTAL EXTREMITY OF THE RIGHT FOREARM, UPPER SURFACE OF LOWER SEGMENT.

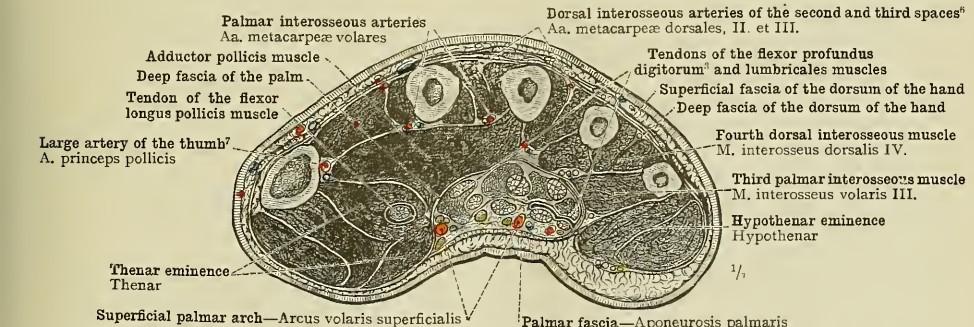
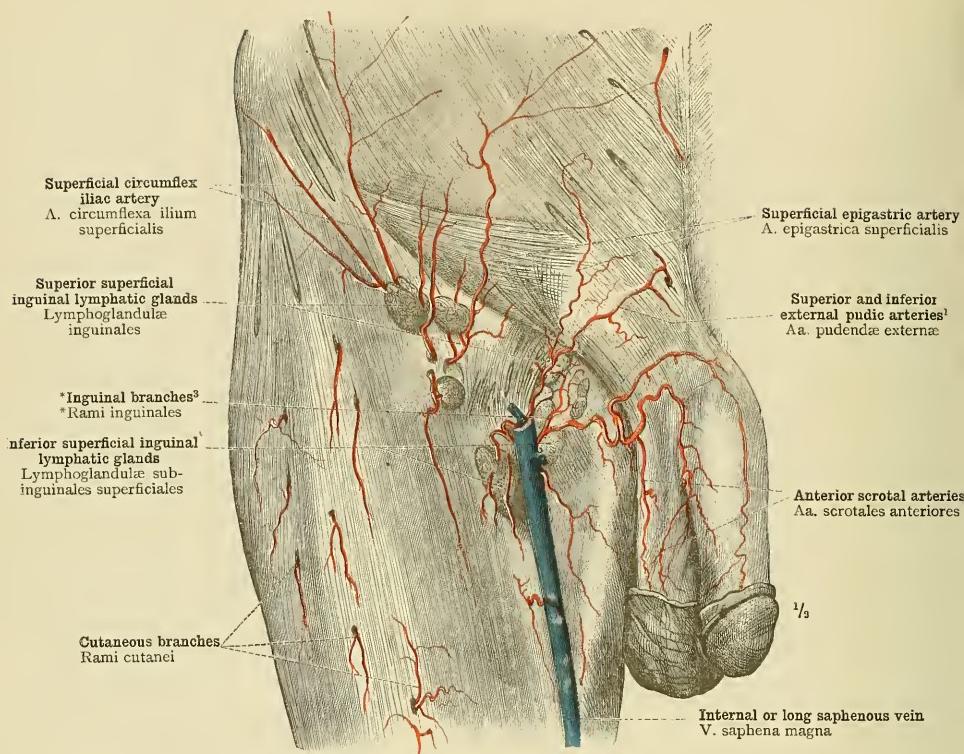


FIG. 1031.—TRANSVERSE SECTION THROUGH THE RIGHT HAND, IMMEDIATELY BELOW THE BASES OF THE METACARPOPHALANGEAL BONES; UPPER SURFACE OF LOWER SEGMENT.

¹ Median Artery.—Called by Macalister *comes nervi mediani artery*.
² Or *flexor perforatus* muscle.
³ See Appendix, note 214.
⁴ See note 2 to p. 632.
⁵ See note 2 to p. 632.
⁶ See Appendix, note 227.
⁷ See Appendix, note 216.
⁸ See note 4 to p. 697.

² Or *flexor perforatus* muscle.
⁶ See Appendix, note 227.



¹ The upper of these is named by Macalister the *superior* or *superficial pubic*, the lower, the *inferior pubic artery*.—Tr.

² See Appendix, note 13.

³ *Rami Inguinales*.—According to Von Langer and Toldt (*op. cit.*, p. 525) there are **inguinal branches of the femoral artery*, to the skin and superficial lymphatic glands of this region, in addition to the four superficial branches of the femoral artery commonly enumerated, viz., *superficial epigastric*, *superficial circumflex iliac*, and *superior and inferior external pudic arteries* (see note ¹ above). Quain does not mention independent inguinal branches, stating that the four superficial branches just enumerated all give small branches to the lymphatic glands in the groin. Macalister mentions an additional superficial branch of the femoral artery in Scarpa's triangle, the *saphenous*, "one or two large branches passing through the skin and lymphatic glands external to the saphena vein" (*op. cit.*, p. 486). These additional branches are in part identical with the *Rami inguinales* of Toldt.—Tr.

⁴ Often called *femoral lymphatic glands*.

⁵ *Subinguinal Fossa*.—"Immediately below Poupart's ligament, a slight hollow is generally seen, corresponding to Scarpa's triangular space, in which, just internal to the centre, the femoral artery may be felt pulsating." (Quain, *op. cit.*, "Appendix on Superficial and Surgical Anatomy," p. 43). Though this author describes the hollow in question, he gives it no distinctive name, and I have therefore used a translation of Toldt's name of *fossa subinguinalis*.—Tr.

FIG. 1032.—THE SUBCUTANEOUS ARTERIES OF THE HYPOGASTRIC REGION (REGIO HYPOGASTRICA), THE INGUINAL REGION, THE MALE EXTERNAL GENERATIVE ORGANS, THE SUBINGUINAL FOSSA (see note ⁵ above) AND THE ADJOINING REGIONS OF THE RIGHT THIGH; THE SUPERIOR AND INFERIOR SUPERFICIAL INGUINAL LYMPHATIC GLANDS AND THE PROXIMAL PORTION OF THE INTERNAL OR LONG SAPHENOUS VEIN; SEEN FROM BEFORE.

The cribiform fascia (fascia cribrosa), the intercolumnar or spermatic fascia (fascia cremasterica Cooperi), and the deep fascia of the penis, have been left intact.

Arteries of the Front of the Thigh.

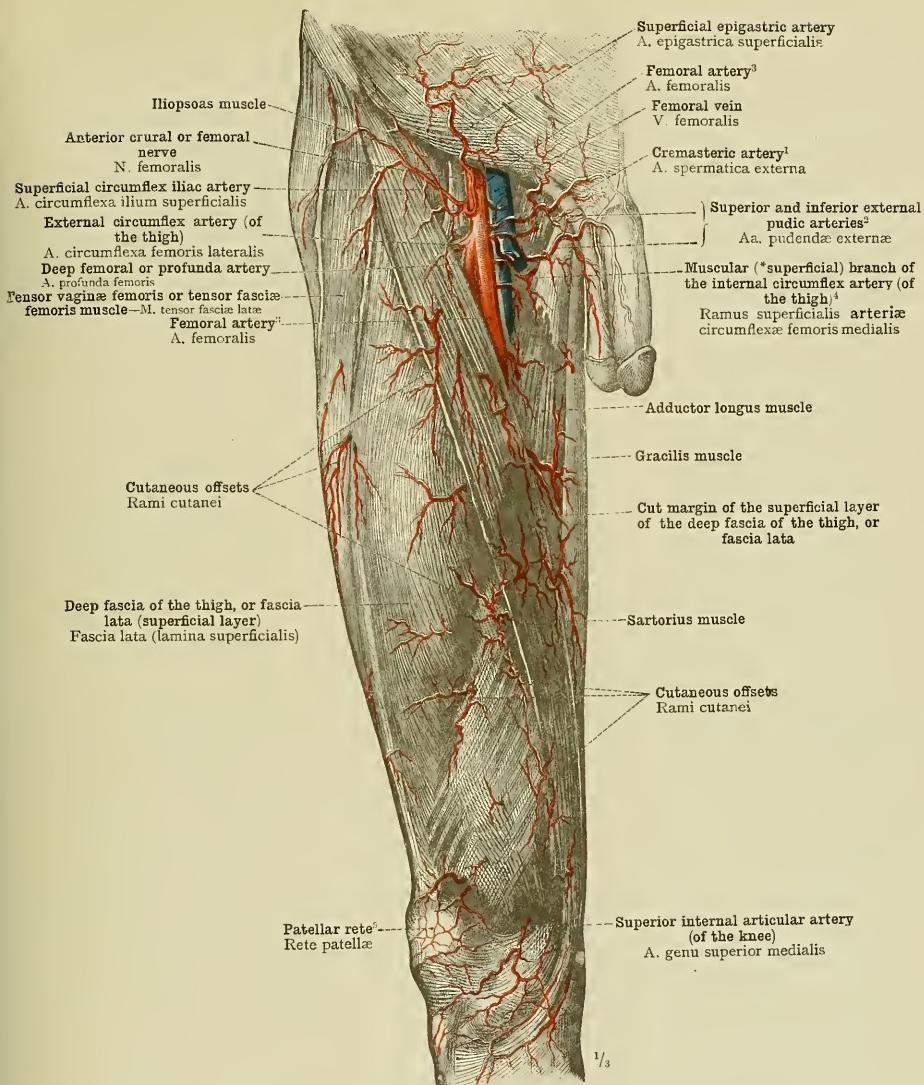
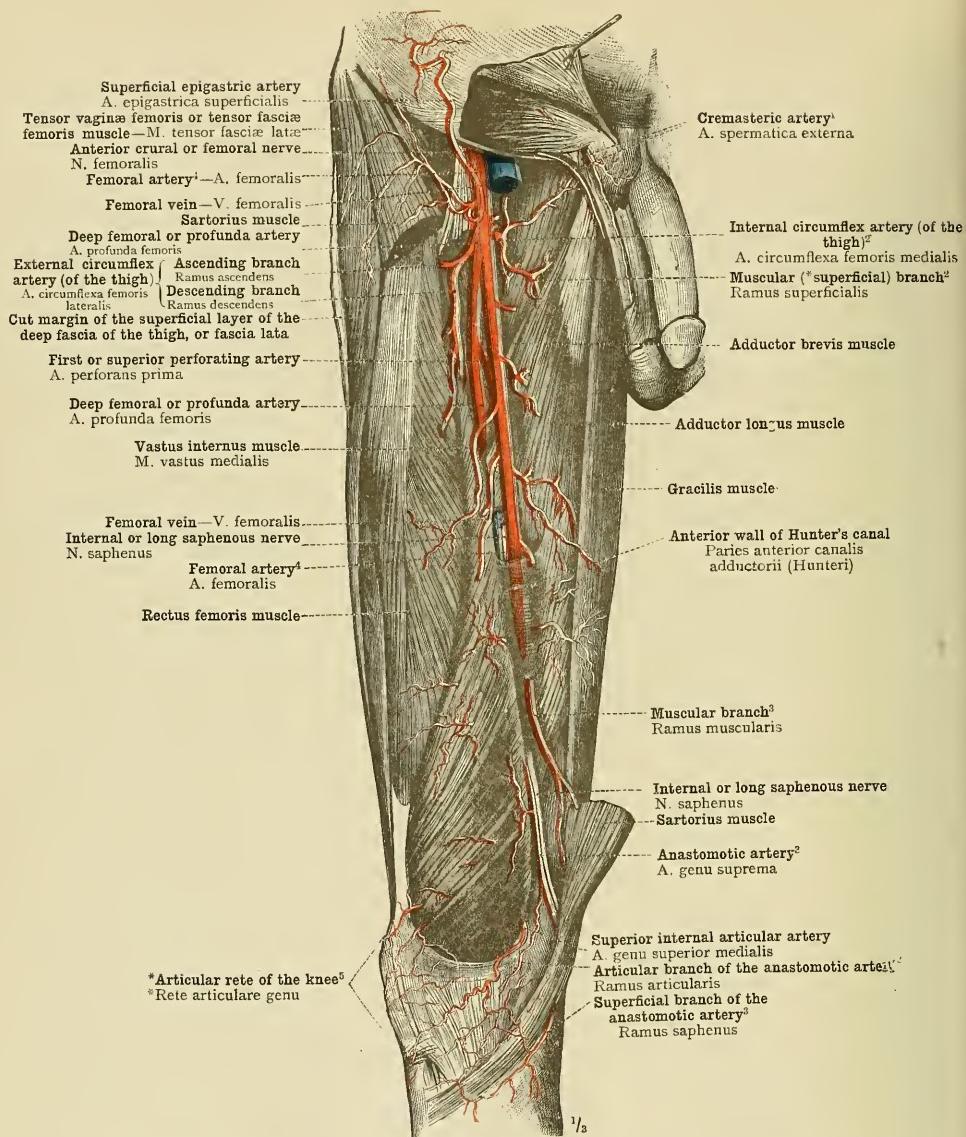
¹ See Appendix, note 129.² The upper of these is called by Macalister the *superior or superficial pubic*, the lower, the *inferior pubic artery*.—Tr.³ See Appendix, note 223.⁴ See Appendix, note 224.⁵ See Appendix, note 225.

FIG. 1033.—THE TOPOGRAPHICAL ANATOMY OF SCARPA'S TRIANGLE (TRIGONUM FEMORALE VEL FOSSA SCARPAE MAJOR) AND THE SUBCUTANEOUS ARTERIES OF THE ANTERIOR SURFACE OF THE RIGHT THIGH, THE REGION OF THE KNEE-JOINT, THE EXTERNAL GENERATIVE ORGANS, AND THE HYPOGASTRIC REGION (REGIO HYPOGASTRICA); SEEN FROM BEFORE.

The superficial layer of the deep fascia of the thigh, or fascia lata, has been removed in the region of Scarpa's triangle, and also from the surfaces of the sartorius, adductor longus, and tensor vaginae femoris muscles.

Arteries of the Front of the Thigh.



¹ See Appendix, note 229.
² See Appendix, note 223.

² See Appendix, note 224.
⁵ See Appendix, note 227.

³ See Appendix, note 225.

FIG. 1034.—THE FEMORAL ARTERY, ARTERIA FEMORALIS (see Appendix, note 223), EXPOSED AS FAR AS ITS ENTRY INTO HUNTER'S CANAL (see Appendix, note 228), AND THE DEEP FEMORAL OR PROFUNDA ARTERY, ARTERIA PROFUNDA FEMORIS.

The middle portion of the sartorius muscle has been cut away.

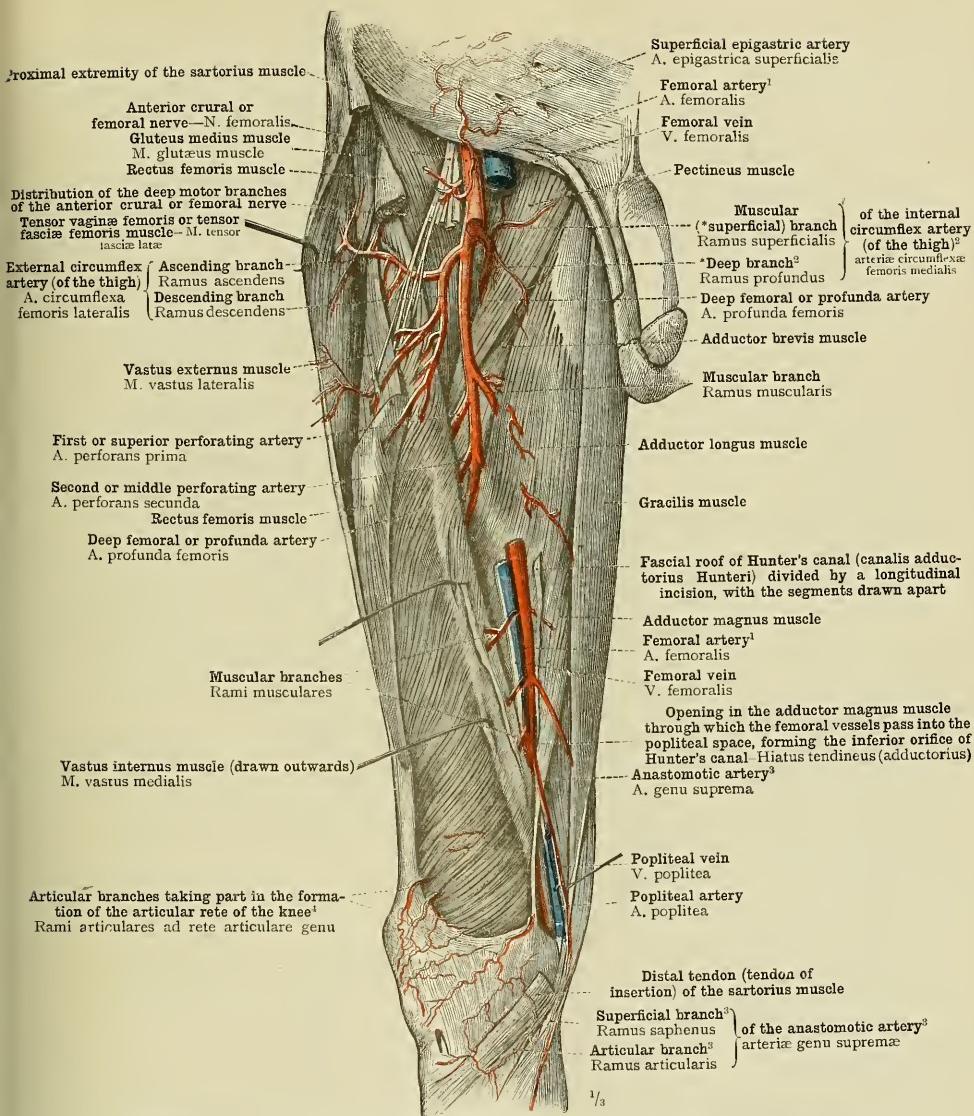
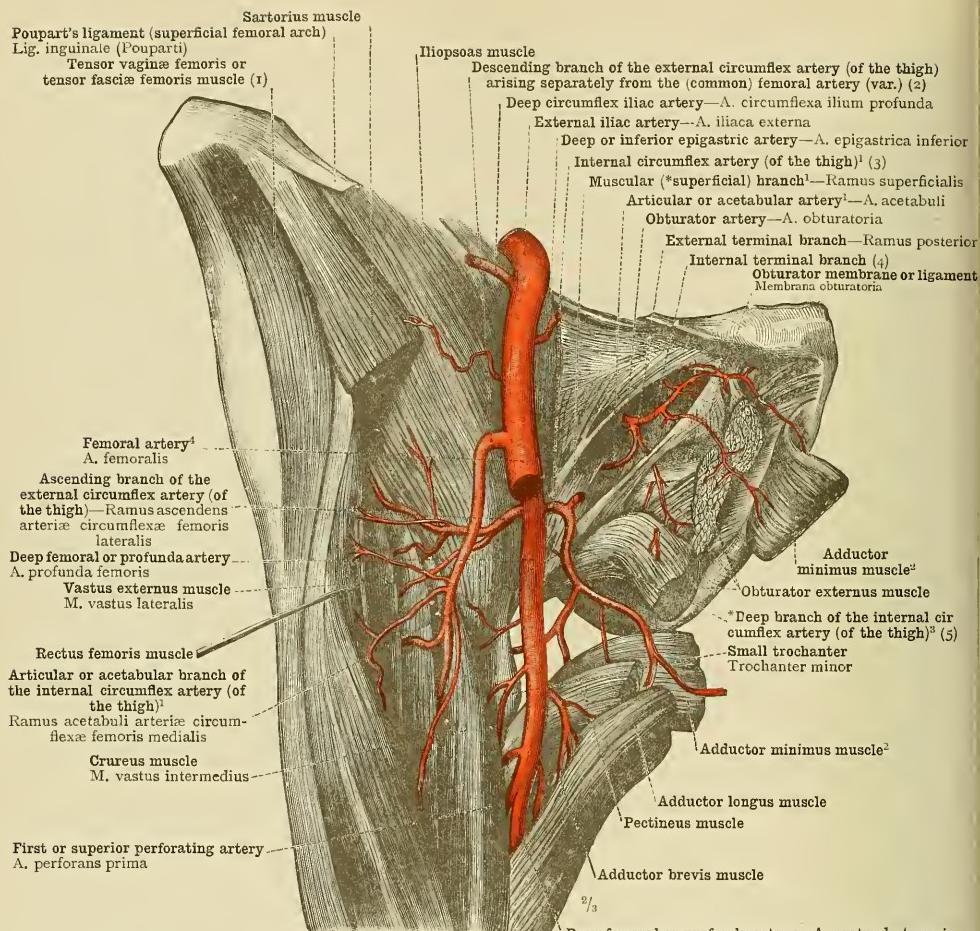
¹ See Appendix, note 223.² *Ramus Profundus.*—The so-called "deep branch" of the internal circumflex artery is by English anatomists regarded as the continuation of that vessel itself. See Appendix, note 224.—³ Tr.³ See Appendix, note 226.⁴ See Appendix, note 227.

FIG. 1035.—THE DEEP FEMORAL OR PROFUNDA ARTERY, ARTERIA PROFUNDA FEMORIS, EXPOSED BY THE PARTIAL REMOVAL OF THE (SUPERFICIAL) FEMORAL ARTERY (see Appendix, note 223); THE (SUPERFICIAL) FEMORAL ARTERY AND VEIN, ARTERIA ET VENA FEMORALIS, IN HUNTER'S CANAL (CANALIS ADDUCTORIUS HUNTERI), THE FASCIAL ROOF OF WHICH HAS BEEN DIVIDED; THE PASSAGE OF THE (SUPERFICIAL) FEMORAL VESSELS THROUGH THE OPENING IN THE ADDUCTOR MAGNUS MUSCLE (HIATUS TENDINEUS ADDUCTORIUS). SEEN FROM BEFORE.

Arteries of the Front of the Thigh.



(1) M. tensor fasciae late
(2) A. circumflexa femoris medialis

(3) Ramus descendens arterie circumflexae femoris lateralis ex arteria femoralis nascentis (var.)
(4) Ramus anterior

(5) Ramus profundus arterie circumflexae femoris medialis

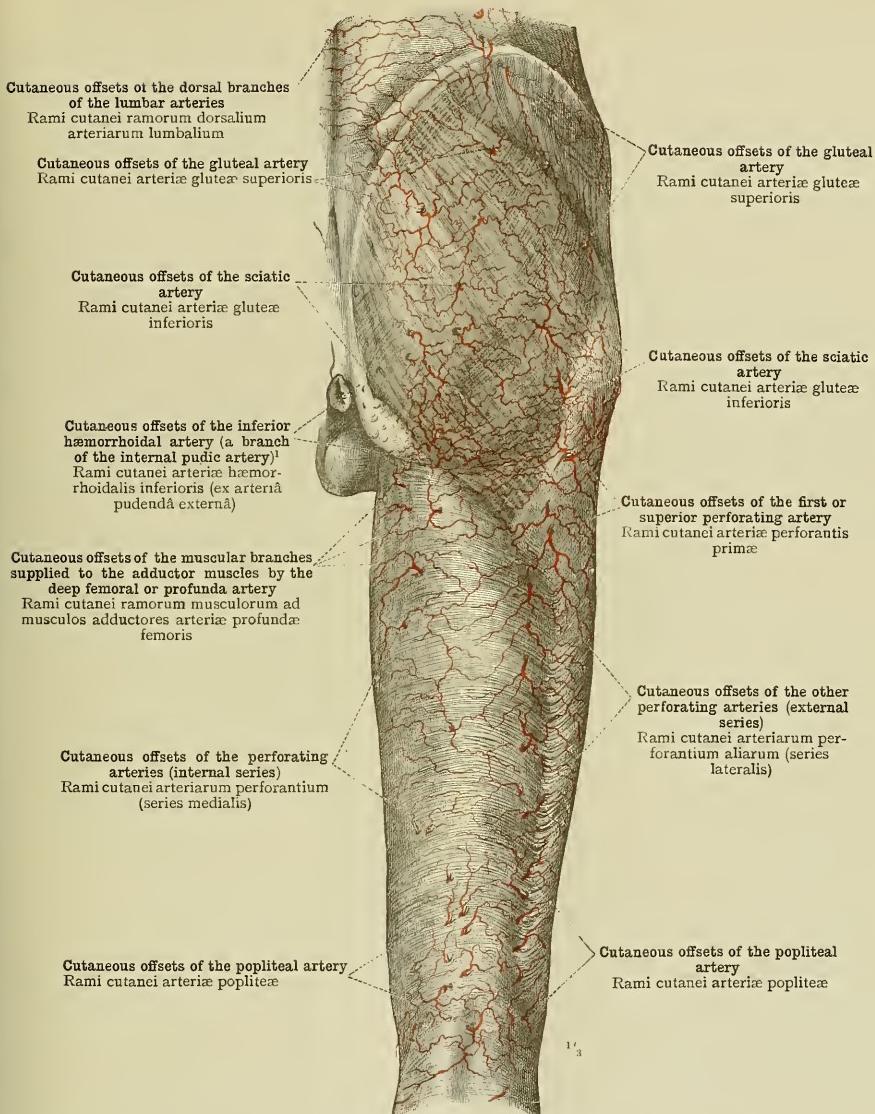
¹ See Appendix, note 224.
² Adductor Minimus Muscle.—This, by English anatomists, is usually regarded, not as a separate muscle, but as the anterior and superior portion of the adductor magnus muscle. See note 2 to p. 345 in Part III. of this work.—Tr.

³ See note 2 to p. 643 and Appendix, note 224.

⁴ See Appendix, note 224.

FIG. 1036.—THE RIGHT OBTURATOR ARTERY, ITS DIVISION INTO INTERNAL AND EXTERNAL TERMINAL BRANCHES, AND THE ORIGIN FROM THE LATTER OF THE ARTICULAR OR ACETABULAR ARTERY. THE DEEP FEMORAL OR PROFUNDA ARTERY, THE *DEEP BRANCH OF THE INTERNAL CIRCUMFLEX ARTERY (see Appendix, note 224), AND ITS ARTICULAR OR ACETABULAR BRANCH, RAMUS ACETABULI. OF THE TWO PRINCIPAL BRANCHES OF THE EXTERNAL CIRCUMFLEX ARTERY, THE ASCENDING BRANCH ARISES IN THIS SPECIMEN FROM THE DEEP FEMORAL OR PROFUNDA ARTERY, BUT THE DESCENDING BRANCH ARISES FROM THE (COMMON) FEMORAL ARTERY (VAR.).

The sartorius muscle has been removed, except for the proximal extremity; the pectenius, adductor longus, and adductor brevis muscles have been divided transversely, the parts below the incision have been drawn inwards, and the proximal extremities have been cut away. The adductor magnus muscle has been entirely removed, the adductor minimus muscle (see note 2 above) has been divided transversely, and the segments have been drawn apart. The obturator externus muscle, which has been thus exposed, has been divided by an incision passing vertically downwards from its upper border, and the inner segment of the muscle has been turned downwards and inwards.



¹ Inferior Hemorrhoidal Artery.—Quain gives *external hemorrhoidal* as an alternative name for this vessel, while Macalister calls it the *anal* artery.

FIG. 1037.—THE CUTANEOUS ARTERIES OF THE BUTTOCK, THE BACK OF THE THIGH, AND THE HAM. RIGHT LOWER EXTREMITY, SEEN FROM BEHIND.

Arteries of the Buttock, the Back of the Thigh, and the Ham.

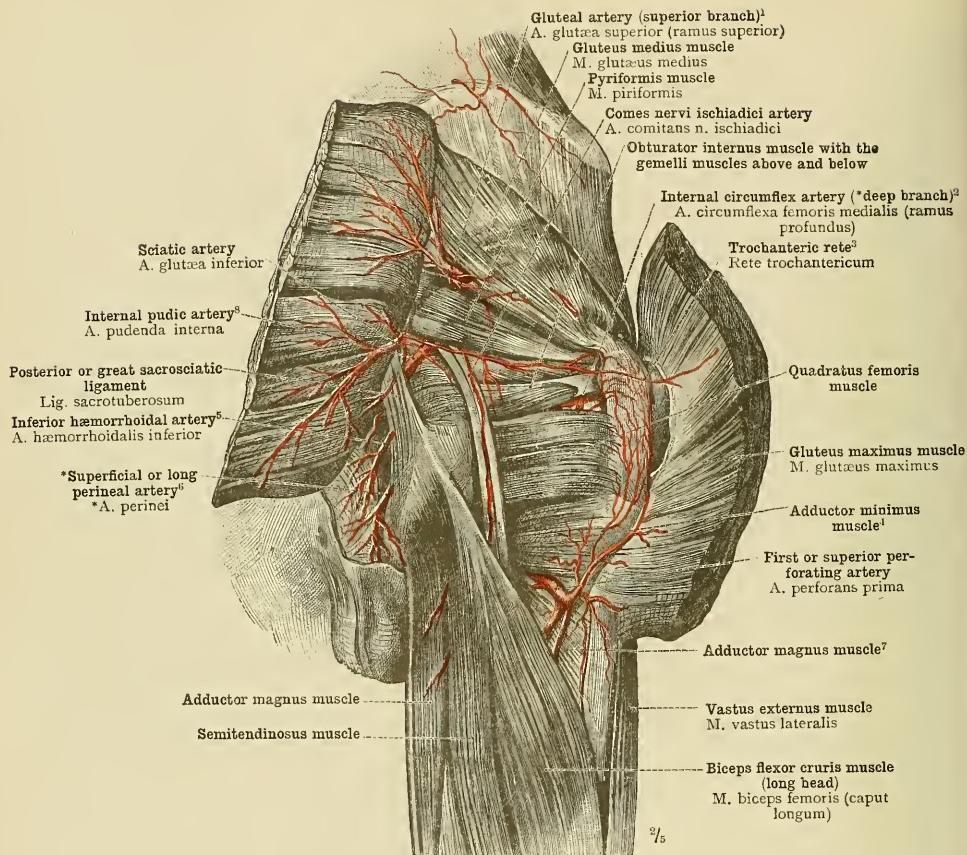
¹ See Appendix, note 229.² See note 2 to p. 643 and Appendix, note 224.³ See Appendix, note 230.⁴ See note 2 to p. 644.⁵ Quain gives *external haemorrhoidal* as an alternative name for this vessel, while Macalister calls it the *anal artery*.⁶ See Appendix, note 231.⁷ See Appendix, note 232.

FIG. 1038.—THE DEEP ARTERIES OF THE RIGHT BUTTOCK; SEEN FROM BEHIND. THE UPPER BRANCH, RAMUS SUPERIOR, OF THE DEEP PART OF THE GLUTEAL ARTERY, ARTERIA GLUTEA SUPERIOR; THE SCIATIC ARTERY, ARTERIA GLUTEA INFERIOR, AND THE COMES NERVI ISCHIADICI ARTERY, ARTERIA COMITANS NERVI ISCHIADICI; THE INTERNAL PUDIC ARTERY, ARTERIA PUDENDA INTERNA, FROM ITS EMERGENCE FROM THE PELVIS THROUGH THE GREAT SACROSCIATIC FORAMEN TO ITS ENTRY INTO THE ISCHIORECTAL FOSSA THROUGH THE SMALL SACROSCIATIC FORAMEN; THE INFERIOR OR EXTERNAL HEMORRHOIDAL ARTERY (ANAL ARTERY), ARTERIA HEMORRHOIDALIS INFERIOR, AND THE SUPERFICIAL OR LONG PERINEAL ARTERY, ARTERIA PERINEI. THE EMERGENCE OF THE FIRST OR SUPERIOR PERFORATING ARTERY, ARTERIA PERFORANS PRIMA, BETWEEN THE ADDUCTOR MINIMUS AND ADDUCTOR MAGNUS MUSCLES (see note 2 to p. 644), AND ITS DIVISION INTO ASCENDING AND DESCENDING BRANCHES; THE CRUCIAL ANASTOMOSIS AND THE TROCHANTERIC RETE, RETE TROCHANTERICUM.

The gluteus maximus muscle has been cut across a little above and internal to its middle, and the segments have been turned inwards and outwards, respectively.

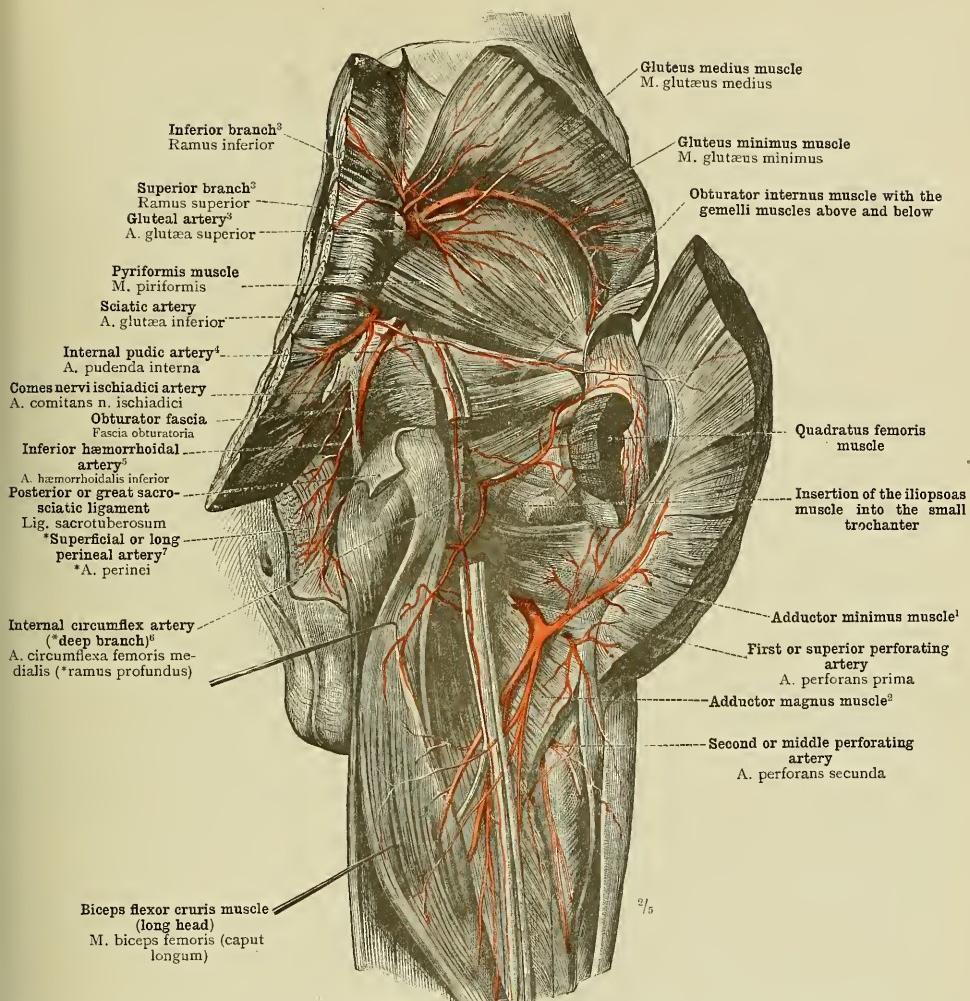
¹ See note ² to p. 644.² See Appendix, note 231.³ See Appendix, note 229.⁴ See Appendix, note 139.⁵ Quain gives *external hemorrhoidal* as an alternative name for this vessel, while Macalister calls it the *anal artery*.⁶ See note ² to p. 643 and Appendix, note 224.⁷ See Appendix, note 147.

FIG. 1039.—THE DEEP ARTERIES OF THE RIGHT BUTTOCK AND OF THE ADJOINING PORTION OF THE RIGHT THIGH.

In the preparation shown in Fig. 1037, the gluteus medius muscle was turned upwards, the posterior or great sacro-sciatic ligament (ligamentum sacrotuberosum) was divided, and, after detaching it from the obturator fascia, its segments were drawn apart, in order to show the internal pudic artery (arteria pudenda interna) in the small sacro-sciatic foramen. By the removal of parts of the great sciatic nerve and the quadratus femoris muscle, the internal circumflex artery and its branches (*ramus profundus arteriae circumflexae femoris medialis—see Appendix, note 224) were displayed beneath the obturator externus muscle. By the removal of part of the femoral attachment (insertion) of the adductor magnus muscle (see Appendix, note 231) the second or middle perforating artery was also displayed.

Arteries of the Buttock.

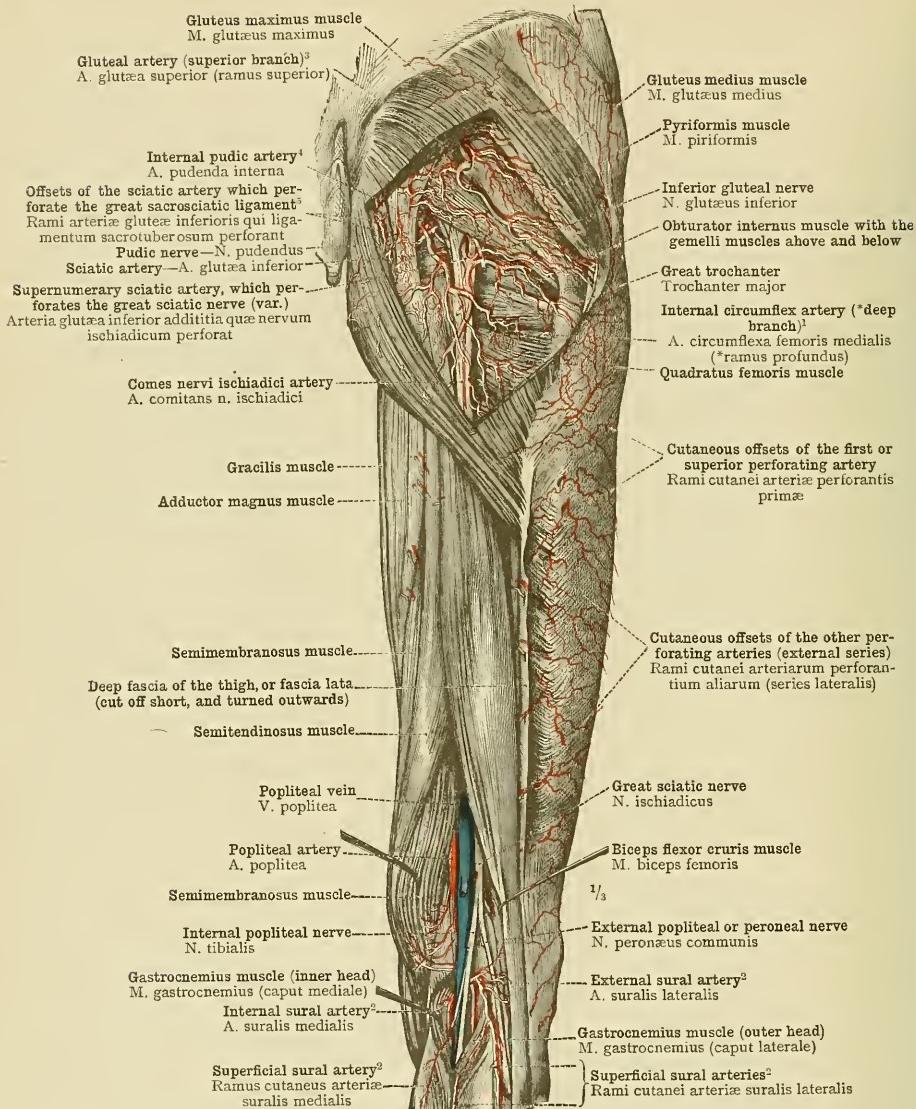
³ See note 3 to p. 643 and Appendix, note 224.⁵ One of these branches, which has an inward course after perforating the great sacrosciatic ligament, is distinguished by English anatomists as the *coccygeal branch of the sciatic artery*.—Tr.² See Appendix, note 223.³ See Appendix, note 222.⁴ See Appendix, note 139.

FIG. 1040.—TOPOGRAPHICAL ANATOMY OF THE BUTTOCK AND THE HAM; THE CUTANEOUS ARTERIES OF THE POSTERO-EXTERNAL PART OF THE RIGHT THIGH; SEEN FROM BEHIND.

Arteries of the Buttock, the Back of the Thigh, and the Ham.

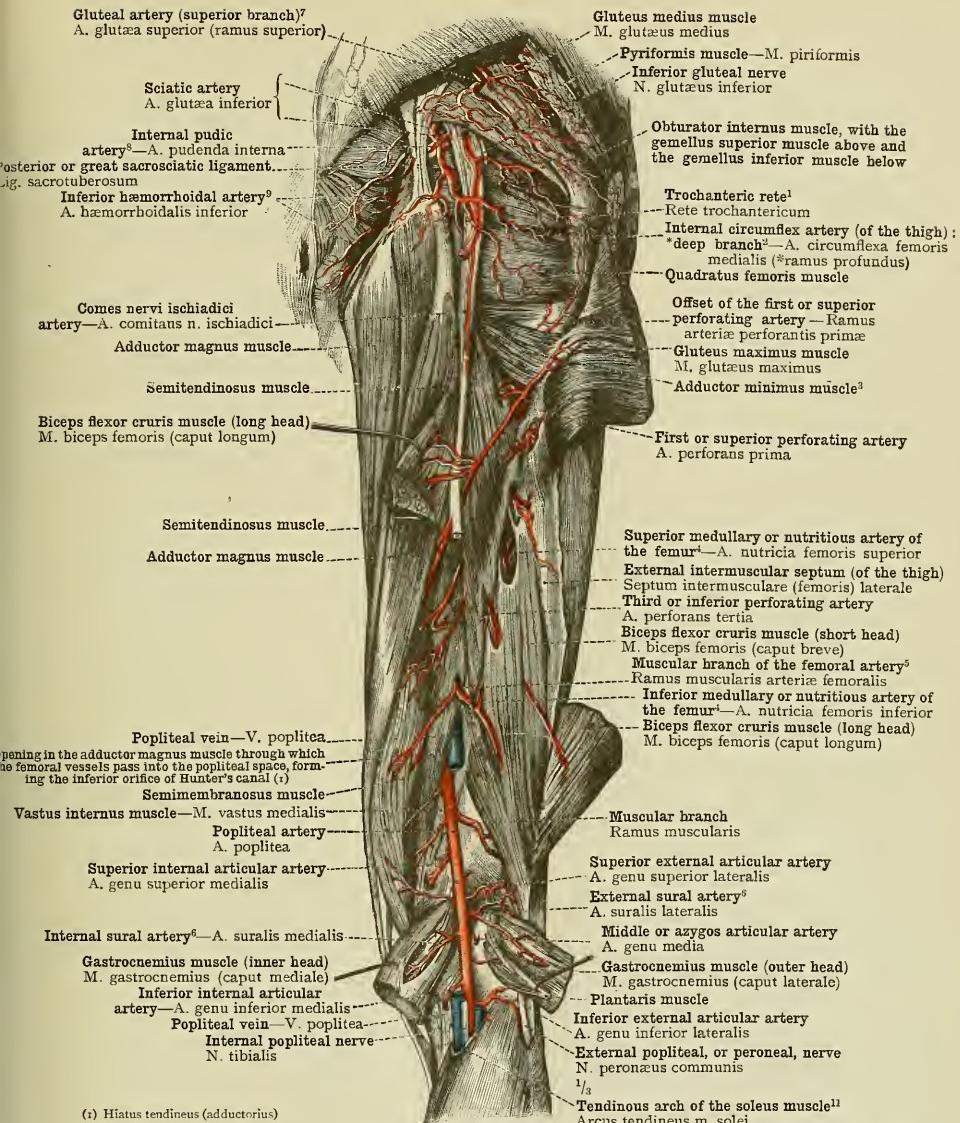


FIG. 1041.—THE DEEP ARTERIES OF THE BUTTOCK; THE PERFORATING ARTERIES, ARTERIAE PERFORANTES; THE POPLITEAL ARTERY, ARTERIA POPLITEA, FROM THE OPENING IN THE ADDUCTOR MAGNUS MUSCLE TO THE ENTRY OF THE ARTERY INTO THE *POPLITEAL CANAL, *CANALIS POPLITEUS¹⁰; THE MUSCULAR AND ARTICULAR BRANCHES OF THE POPLITEAL ARTERY; SEEN FROM BEHIND.

¹ See Appendix, note 230.

² See note 2 to p. 643 and Appendix, note 224.

³ See Appendix, note 231.

⁴ See Appendix, note 232.

⁵ Quain gives *external hemorrhoidal* as an alternative name for this vessel, while Macalister calls it the *anal artery*.

⁶ See Appendix, note 234.

⁷ See note 7 to p. 563 in Part III.

⁸ See Appendix, note 233.

⁹ See Appendix, note 235.

¹⁰ See Appendix, note 236.

¹¹ See note 7 to p. 563 in Part III.

¹² See Appendix, note 237.

¹³ See Appendix, note 238.

¹⁴ See Appendix, note 239.

¹⁵ See Appendix, note 240.

¹⁶ See Appendix, note 241.

¹⁷ See Appendix, note 242.

¹⁸ See Appendix, note 243.

¹⁹ See Appendix, note 244.

²⁰ See Appendix, note 245.

²¹ See Appendix, note 246.

²² See Appendix, note 247.

²³ See Appendix, note 248.

²⁴ See Appendix, note 249.

²⁵ See Appendix, note 250.

²⁶ See Appendix, note 251.

²⁷ See Appendix, note 252.

²⁸ See Appendix, note 253.

²⁹ See Appendix, note 254.

³⁰ See Appendix, note 255.

³¹ See Appendix, note 256.

³² See Appendix, note 257.

³³ See Appendix, note 258.

³⁴ See Appendix, note 259.

³⁵ See Appendix, note 260.

³⁶ See Appendix, note 261.

³⁷ See Appendix, note 262.

³⁸ See Appendix, note 263.

³⁹ See Appendix, note 264.

⁴⁰ See Appendix, note 265.

⁴¹ See Appendix, note 266.

⁴² See Appendix, note 267.

⁴³ See Appendix, note 268.

⁴⁴ See Appendix, note 269.

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⁴⁶ See Appendix, note 271.

⁴⁷ See Appendix, note 272.

⁴⁸ See Appendix, note 273.

⁴⁹ See Appendix, note 274.

⁵⁰ See Appendix, note 275.

⁵¹ See Appendix, note 276.

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⁵⁸ See Appendix, note 283.

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⁶⁰ See Appendix, note 285.

⁶¹ See Appendix, note 286.

⁶² See Appendix, note 287.

⁶³ See Appendix, note 288.

⁶⁴ See Appendix, note 289.

⁶⁵ See Appendix, note 290.

⁶⁶ See Appendix, note 291.

⁶⁷ See Appendix, note 292.

⁶⁸ See Appendix, note 293.

⁶⁹ See Appendix, note 294.

⁷⁰ See Appendix, note 295.

⁷¹ See Appendix, note 296.

⁷² See Appendix, note 297.

⁷³ See Appendix, note 298.

⁷⁴ See Appendix, note 299.

⁷⁵ See Appendix, note 300.

⁷⁶ See Appendix, note 301.

⁷⁷ See Appendix, note 302.

⁷⁸ See Appendix, note 303.

⁷⁹ See Appendix, note 304.

⁸⁰ See Appendix, note 305.

⁸¹ See Appendix, note 306.

⁸² See Appendix, note 307.

⁸³ See Appendix, note 308.

⁸⁴ See Appendix, note 309.

⁸⁵ See Appendix, note 310.

⁸⁶ See Appendix, note 311.

⁸⁷ See Appendix, note 312.

⁸⁸ See Appendix, note 313.

⁸⁹ See Appendix, note 314.

⁹⁰ See Appendix, note 315.

⁹¹ See Appendix, note 316.

⁹² See Appendix, note 317.

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¹¹⁵ See Appendix, note 340.

¹¹⁶ See Appendix, note 341.

¹¹⁷ See Appendix, note 342.

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¹¹⁹ See Appendix, note 344.

¹²⁰ See Appendix, note 345.

¹²¹ See Appendix, note 346.

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¹²⁴ See Appendix, note 349.

¹²⁵ See Appendix, note 350.

¹²⁶ See Appendix, note 351.

¹²⁷ See Appendix, note 352.

¹²⁸ See Appendix, note 353.

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¹³⁰ See Appendix, note 355.

¹³¹ See Appendix, note 356.

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¹³⁴ See Appendix, note 359.

¹³⁵ See Appendix, note 360.

¹³⁶ See Appendix, note 361.

¹³⁷ See Appendix, note 362.

¹³⁸ See Appendix, note 363.

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¹⁵¹ See Appendix, note 376.

¹⁵² See Appendix, note 377.

¹⁵³ See Appendix, note 378.

¹⁵⁴ See Appendix, note 379.

¹⁵⁵ See Appendix, note 380.

¹⁵⁶ See Appendix, note 381.

¹⁵⁷ See Appendix, note 382.

¹⁵⁸ See Appendix, note 383.

¹⁵⁹ See Appendix, note 384.

¹⁶⁰ See Appendix, note 385.

¹⁶¹ See Appendix, note 386.

¹⁶² See Appendix, note 387.

¹⁶³ See Appendix, note 388.

¹⁶⁴ See Appendix, note 389.

¹⁶⁵ See Appendix, note 390.

¹⁶⁶ See Appendix, note 391.

¹⁶⁷ See Appendix, note 392.

¹⁶⁸ See Appendix, note 393.

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¹⁷¹ See Appendix, note 396.

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¹⁷³ See Appendix, note 398.

¹⁷⁴ See Appendix, note 399.

¹⁷⁵ See Appendix, note 400.

¹⁷⁶ See Appendix, note 401.

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¹⁹³ See Appendix, note 418.

¹⁹⁴ See Appendix, note 419.

¹⁹⁵ See Appendix, note 420.

¹⁹⁶ See Appendix, note 421.

¹⁹⁷ See Appendix, note 422.

¹⁹⁸ See Appendix, note 423.

¹⁹⁹ See Appendix, note 424.

²⁰⁰ See Appendix, note 425.

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²⁰³ See Appendix, note 428.

²⁰⁴ See Appendix, note 429.

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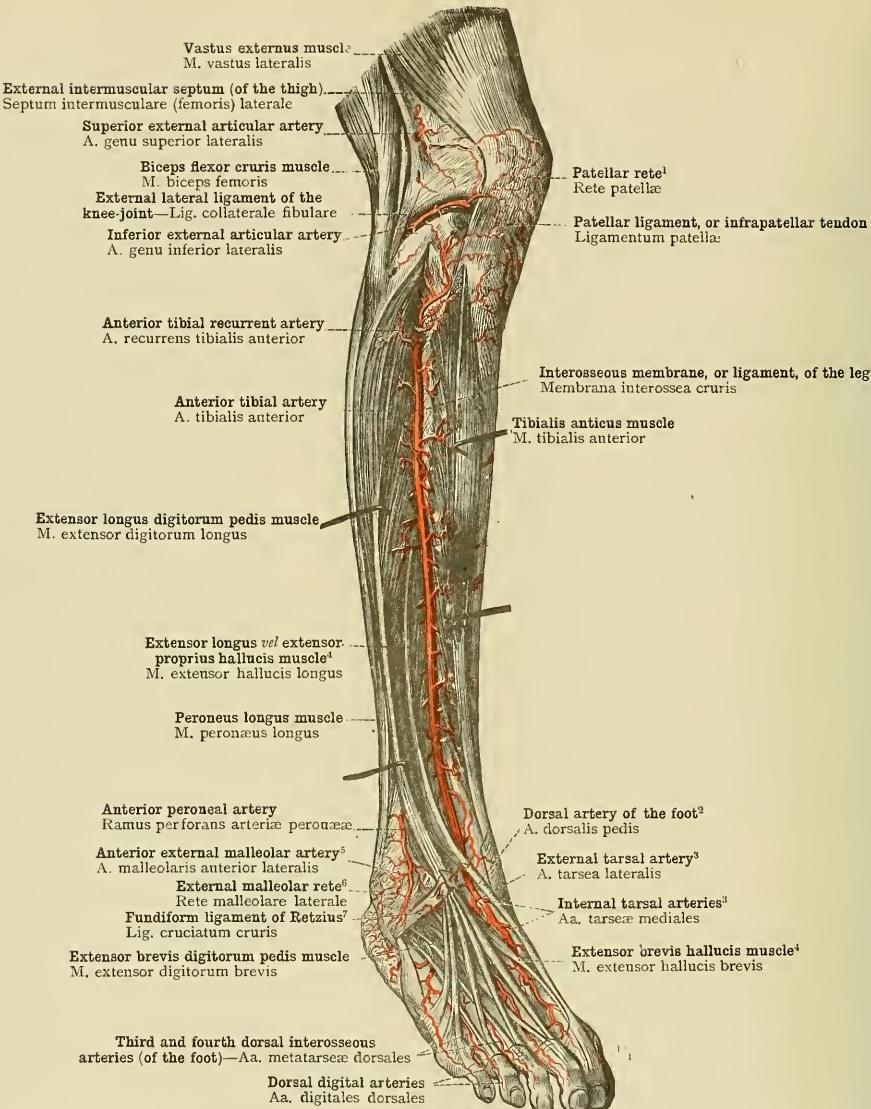


FIG. 1042.—THE ANTERIOR TIBIAL ARTERY AND ITS CONTINUATION INTO THE DORSAL ARTERY OF THE FOOT, OR DORSALIS PEDIS ARTERY.

The tibialis anticus and the extensor longus digitorum pedis muscles have been drawn apart, and the uppermost part of the former has been cut away. The anterior annular ligament of the ankle has been divided by a longitudinal incision, and its outer limb (fundiform ligament of Retzius⁷) has been raised from the subjacent tendons of the extensor longus digitorum pedis and peroneus tertius muscles.

¹ See Appendix, note 227.
⁴ See note 2 to p. 364 in Part III.

² Often known in England by its Latin name of *dorsalis pedis artery*.
⁵ See Appendix, note 236.

³ See Appendix, note 235.
⁶ See Appendix, note 237.
⁷ See Appendix, note 238.

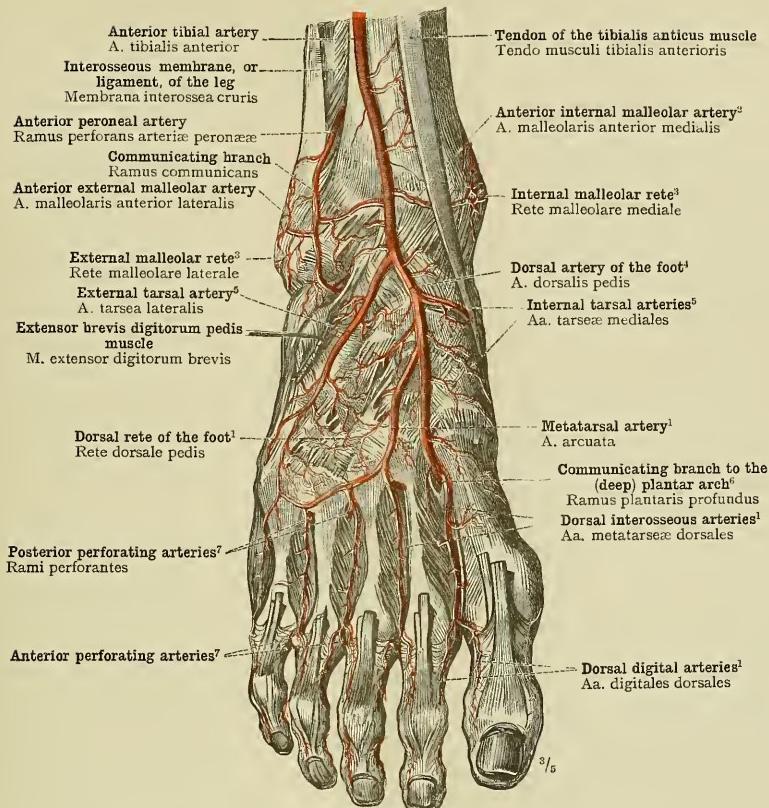
¹ See Appendix, note 235.² Often known in England by its Latin name of *dorsalis pedis artery*.³ See Appendix, note 236.⁴ See Appendix, note 236.⁵ See Appendix, note 237.⁶ See Appendix, note 235.⁷ See Appendix, note 237.⁸ See Appendix, note 235.

FIG. 1043.—THE DISTAL EXTREMITY OF THE ANTERIOR TIBIAL ARTERY, ITS COMMUNICATION WITH THE ANTERIOR PERONEAL ARTERY (RAMUS PERFORANS ARTERIE PERONÆ) AND ITS CONTINUATION INTO THE DORSAL ARTERY OF THE FOOT (ARTERIA DORSALIS PEDIS); THE ANTERIOR EXTERNAL AND ANTERIOR INTERNAL MALLEOLAR ARTERIES (ARTERIE MALLEOLARES ANTERIORES, MEDIALIS ET LATERALIS); THE EXTERNAL AND INTERNAL MALLEOLAR RETIA; THE EXTERNAL TARSAL ARTERY (ARTERIA TARSEA LATERALIS) AND THE INTERNAL TARSAL ARTERIES (ARTERIE TARSEA MEDIALES); THE METATARSAL ARTERY (ARTERIA ARCUTA); THE DORSAL ARTERIAL RETE OF THE FOOT; THE COMMUNICATING BRANCH OF THE DORSAL ARTERY OF THE FOOT TO THE DEEP PLANTAR ARCH OR FIRST POSTERIOR PERFORATING ARTERY (RAMUS PLANTARIS PROFUNDUS ARTERIE DORSALIS PEDIS—see Appendix, note 240); THE DORSAL INTEROSSEOUS ARTERIES (ARTERIE METATARSÆ DORSALES), AND THEIR CONNECTIONS WITH THE POSTERIOR PERFORATING OFFSETS (RAMI PERFORANTES) OF THE DEEP PLANTAR ARCH; THE DORSAL DIGITAL ARTERIES (ARTERIE DIGITALES DORSALES), AND THEIR ANASTOMOSES WITH THE PLANTAR DIGITAL ARTERIES (THESE ANASTOMOSES BEING THE ANTERIOR PERFORATING ARTERIES OF ENGLISH ANATOMISTS—see Appendix, note 241). THE RIGHT FOOT WITH THE DISTAL EXTREMITY OF THE LEG; SEEN FROM THE DORSAL SIDE.

The extensor muscles of the toes were removed as far down as the heads of the metatarsal bones and the peroneus tertius muscle was cut completely away, in order to lay bare the arteries on the dorsum of the foot.

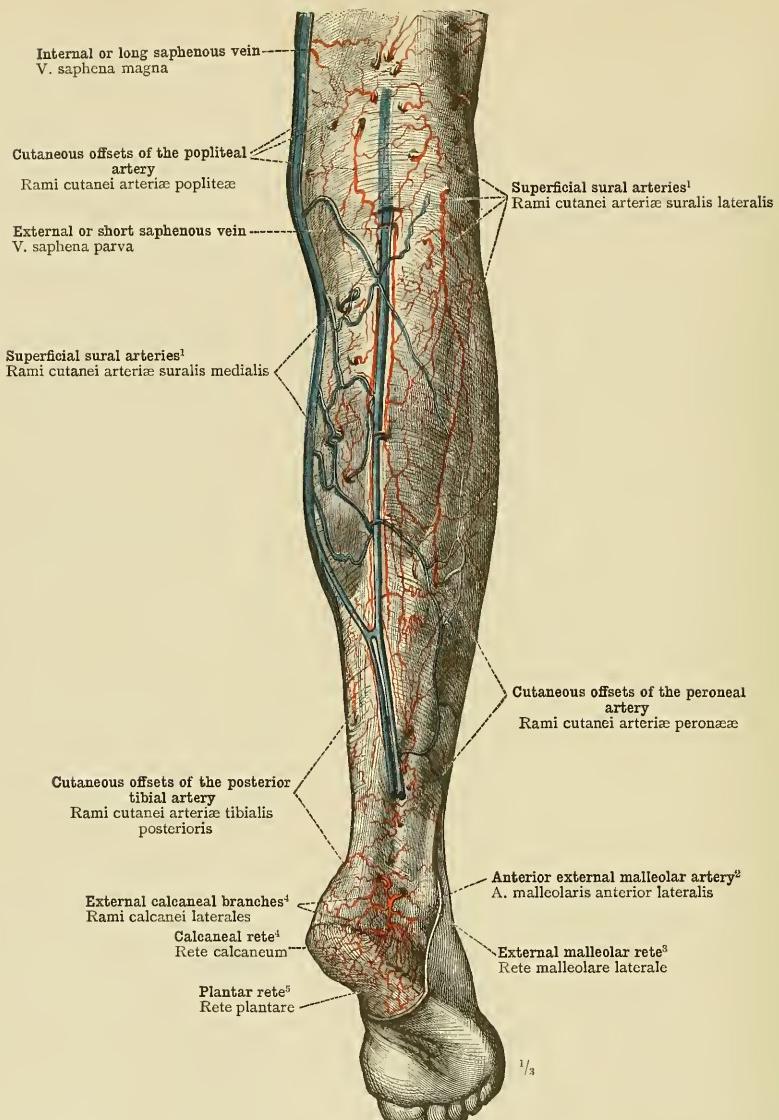
¹ See Appendix, note 232.² See Appendix, note 236.³ See Appendix, note 237.⁴ See Appendix, note 242.⁵ See Appendix, note 243.

FIG. 1044.—THE SUBCUTANEOUS ARTERIES OF THE CALF AND OF THE POPLITEAL REGION IN ADDITION TO PORTIONS OF THE INTERNAL OR LONG AND THE EXTERNAL OR SHORT SAPHENOUS VEINS (VENA SAPHENA MAGNA ET VENA SAPHENA PARVA); THE CALCANEAL AND MALLEOLAR RETIA; THE POSTERIOR PORTION OF THE PLANTAR RETE. RIGHT LEG AND FOOT; SEEN FROM BEHIND AND THE OUTER SIDE.

Arteries of the Back of the Leg.

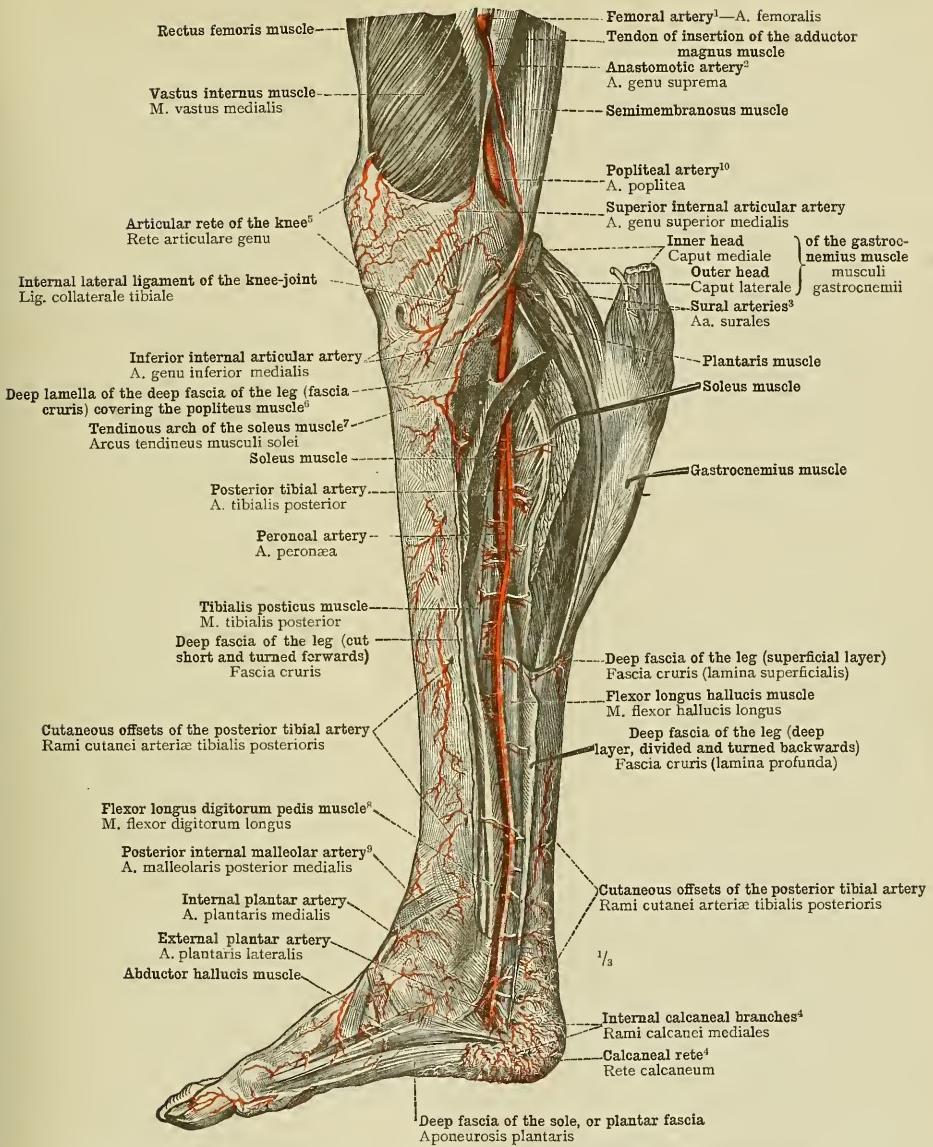
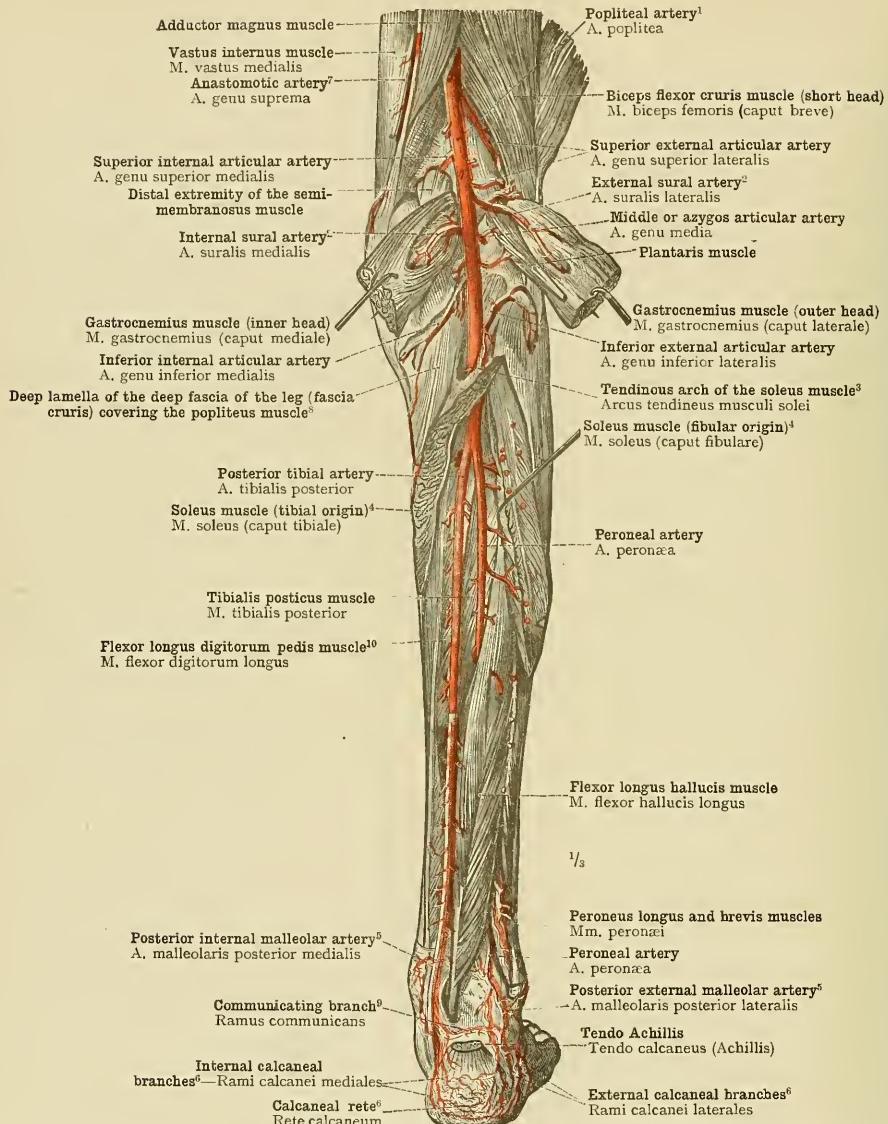
¹ See Appendix, note 223.² See note 5 to p. 642.³ Or *flexor perforans* muscle.⁴ See Appendix, note 225.⁵ See Appendix, note 244.⁶ See Appendix, note 236.⁷ See note 7 to p. 363 in Part III.⁸ See Appendix, note 245.⁹ See Appendix, note 242.

FIG. 1045.—THE POPLITEAL ARTERY, ITS PASSAGE THROUGH THE *POPLITEAL CANAL (see Appendix, note 245), AND THE POSTERIOR TIBIAL ARTERY.

Arteries of the Back of the Leg.



1 See Appendix, note 245.

6 See Appendix, note 242.

2 See Appendix, note 232.

7 See Appendix, note 246.

3 See note 7 to p. 363 in Part III.

8 See Appendix, note 244.

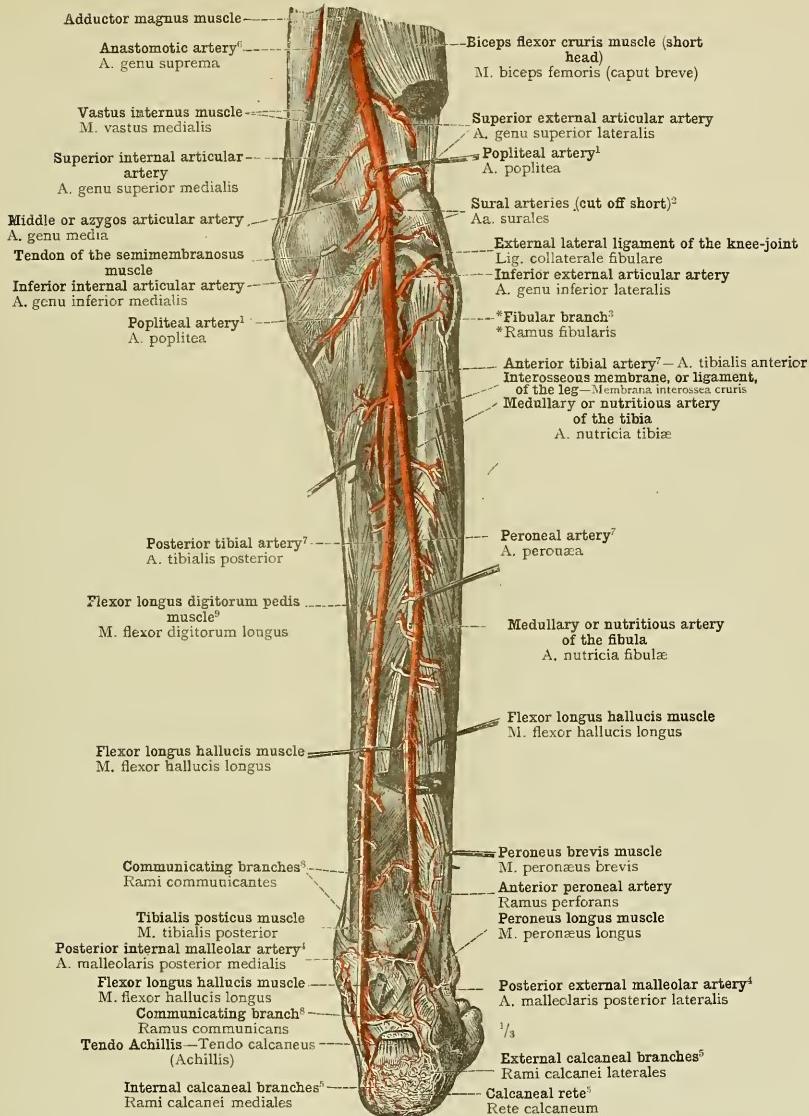
4 See Appendix, note 246.

9 See Appendix, note 247.

5 See Appendix, note 236.

to Or flexor peronaeus muscle.

FIG. 1046.—THE POPLITEAL ARTERY, ARTERIA POPLITEA; ITS PASSAGE THROUGH THE *POPLITEAL CANAL, CANALIS POPLITEUS (see Appendix, note 245); THE POSTERIOR TIBIAL ARTERY AND THE PERONEAL ARTERY. RIGHT LEG AND FOOT, SEEN FROM BEHIND.



¹ See Appendix, note 245.
⁶ See Appendix, note 226.

² See Appendix, note 222.
⁷ See Appendix, note 247.

³ See Appendix, note 228.
⁸ See Appendix, note 247.

⁴ See Appendix, note 242.
⁹ Or *flexor perforans* muscle.

FIG. 1047—THE ARTICULAR BRANCHES OF THE POPLITEAL ARTERY; THE ORIGIN OF THE ANTERIOR TIBIAL ARTERY (see Appendix, note 240); THE MEDULLARY OR NUTRITIVE ARTERIES OF THE TIBIA AND THE FIBULA, ARTERIE NUTRICIE TIBIE ET FIEULÆ; THE TERMINAL DIVISION OF THE PERONEAL ARTERY. RIGHT LEG AND FOOT, SEEN FROM BEHIND.

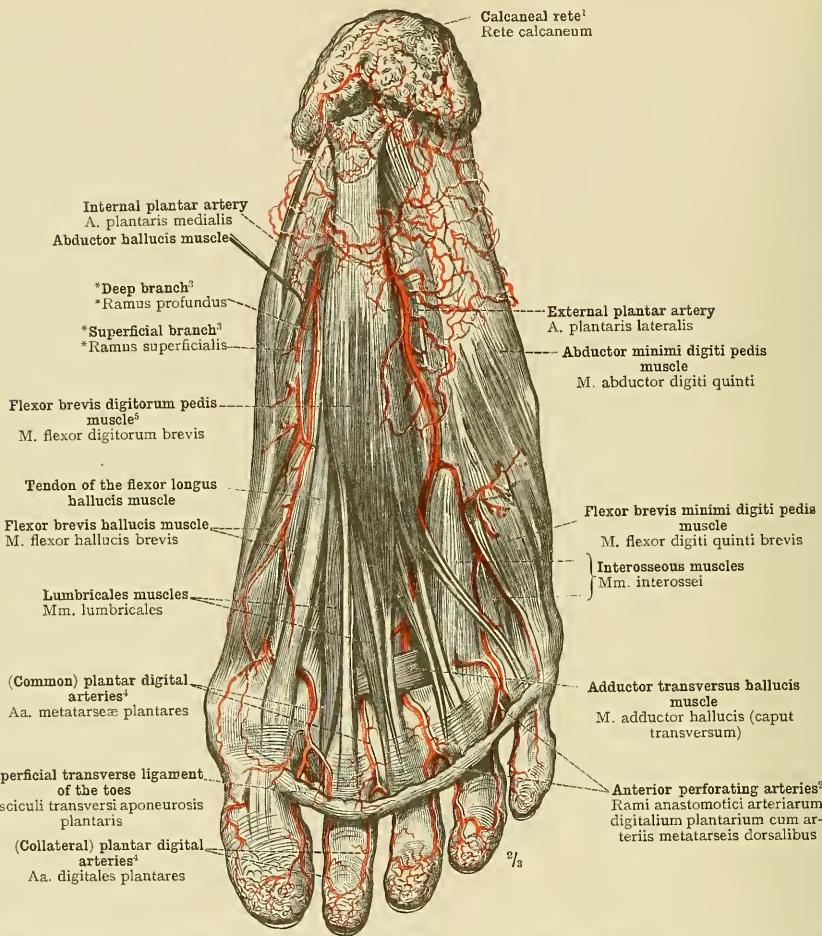
¹ See Appendix, note 242.² See Appendix, note 245.³ See Appendix, note 250.⁴ See Appendix, note 251.⁵ Or flexor perforatus muscle.

FIG. 1048.—SUPERFICIAL ARTERIES OF THE SOLE OF THE FOOT: THE CALCANEAL RETE, RETE CALCANEUM (see Appendix, note 242), AND PART OF THE PLANTAR RETE (see Appendix, note 243); THE EXTERNAL PLANTAR ARTERY, ARTERIA PLANTARIS LATERALIS, AND ITS SUPERFICIAL DISTRIBUTION; THE INTERNAL PLANTAR ARTERY, ARTERIA PLANTARIS MEDIALIS, AND ITS DIVISION INTO *SUPERFICIAL AND *DEEP BRANCHES, *RAMUS SUPERFICIALIS ET *RAMUS PROFUNDUS (see Appendix, note 250); THE (COMMON) PLANTAR DIGITAL ARTERIES, ARTERIA METATARSEÆ PLANTARES (see Appendix, note 251); THE (COLLATERAL) PLANTAR DIGITAL ARTERIES, ARTERIA DIGITALE PLANTARES (see Appendix, note 251), AND THE ANTERIOR PERFORATING ARTERIES (see Appendix, note 241). PLANTAR ASPECT OF THE RIGHT FOOT.

The deep fascia of the sole or plantar fascia (aponeurosis plantaris) was removed, except for the superficial transverse ligament of the toes (fasciculi transversi aponeurosis plantaris); in the heel, the subcutaneous pad of fat was left intact.

Arteries of the Sole of the Foot.

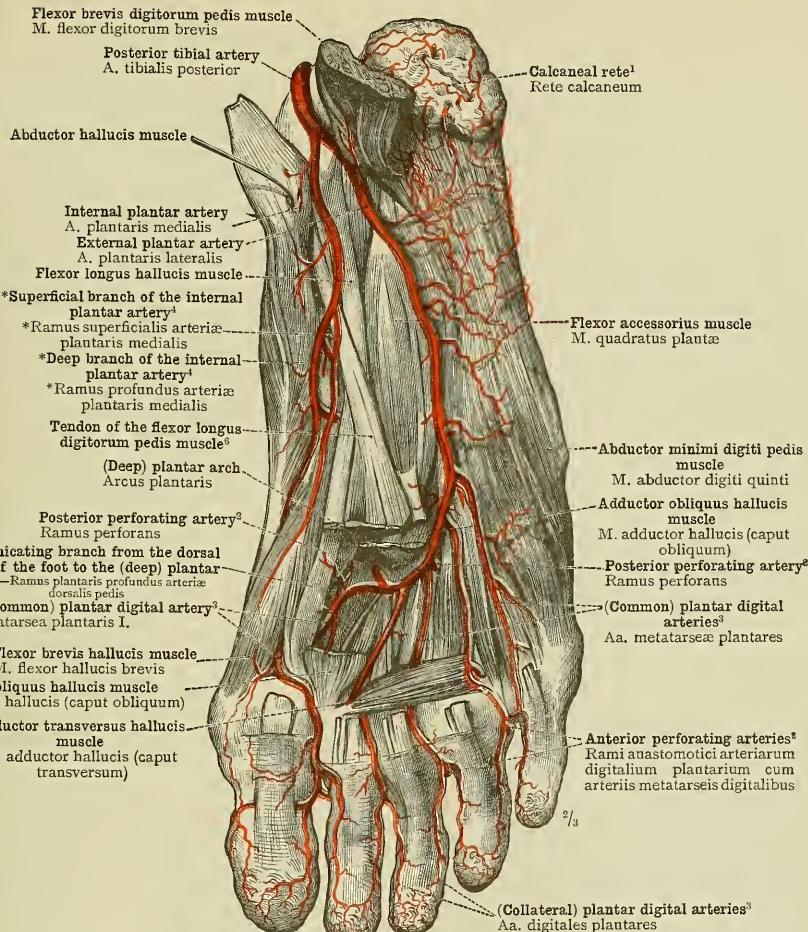


FIG. 1049.—DEEP ARTERIES OF THE SOLE OF THE FOOT: THE (DEEP) PLANTAR ARCH⁷; THE COMMON³ AND THE COLLATERAL³ PLANTAR DIGITAL ARTERIES.

In the preparation shown in Fig. 1048, in order to expose fully the two terminal branches of the posterior tibial artery, the abductor hallucis muscle was detached from the os calcis and turned outwards, the short flexor of the toes was cut across near its hinder extremity, its proximal segment being turned backwards, and its distal segment cut away as far forward as the heads of the metatarsal bones. After the partial removal of the tendons of the long flexor of the toes and of the long flexor of the great toe as well as of the adductor obliquus hallucis, the (deep) plantar arch was exposed, together with the posterior perforating and the (common) plantar digital arteries.

¹ See Appendix, note 25.

² See Appendix, note 25.

³ See Appendix, note 25.

⁴ See Appendix, note 25.

⁵ Or first posterior perforating artery—see Appendix, note 25.

⁶ Of flexor perforans muscle.

⁷ (Deep) Plantar Arch.—This is most commonly spoken of as the *plantar arch*, without qualification. Toldt also calls it simply *arcus (arteriosus) plantarius*. Some authorities, however, describe also a *superficial plantar arch*. (See Appendix, note 25.)—Tr.

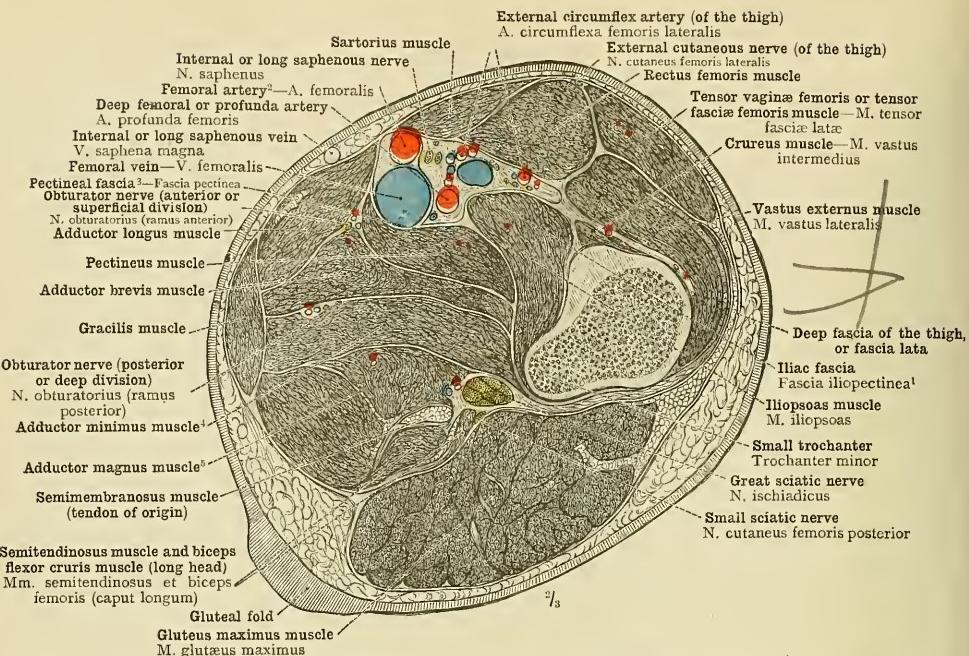


FIG. 1050.—TRANSVERSE SECTION THROUGH THE RIGHT THIGH AT THE LEVEL OF THE SMALL TROCHANTER; UPPER SURFACE OF LOWER SEGMENT.

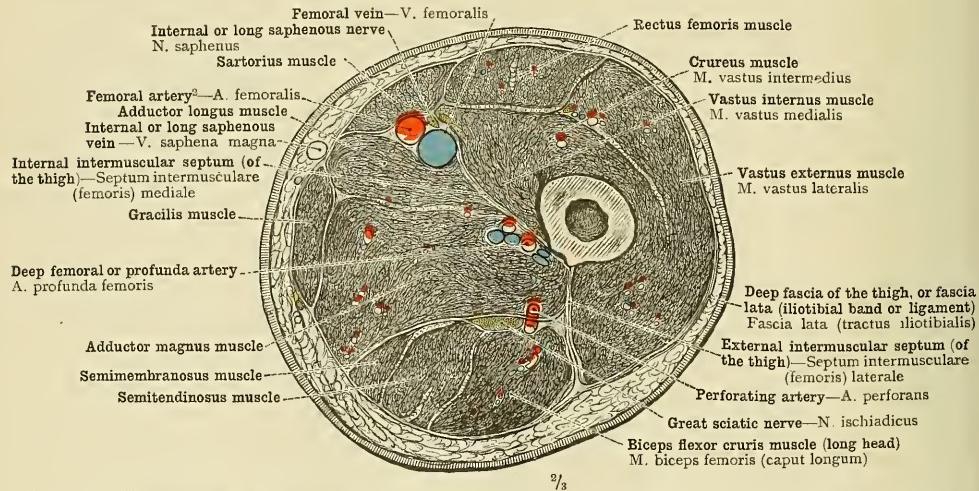


FIG. 1051.—TRANSVERSE SECTION THROUGH THE RIGHT THIGH, A LITTLE ABOVE THE MIDDLE; UPPER SURFACE OF LOWER SEGMENT.

¹ See Appendix, note 252.

² See note ² to p. 644.

² See Appendix, note 223.

³ See Appendix, note 253.

⁵ See Appendix, note 231.

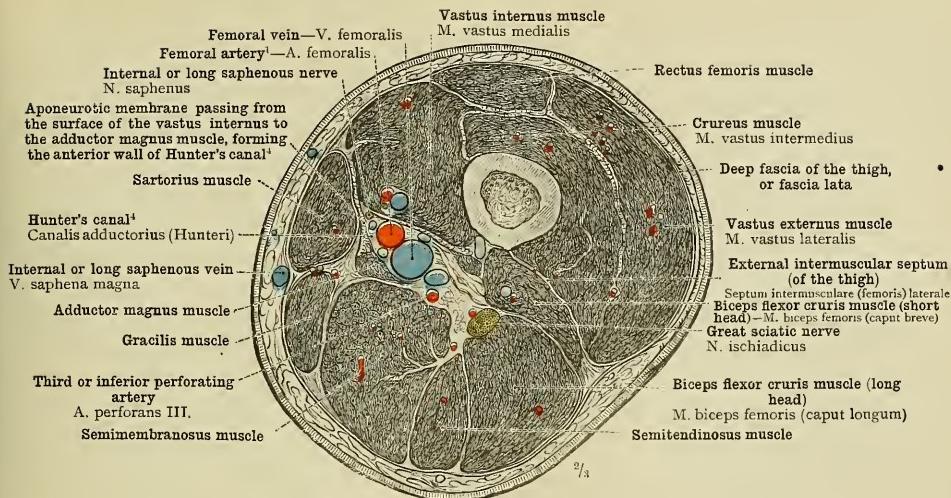


FIG. 1052.—TRANSVERSE SECTION THROUGH THE RIGHT THIGH, A LITTLE ABOVE THE OPENING IN THE ADDUCTOR MAGNUS MUSCLE THROUGH WHICH THE FEMORAL VESSELS PASS INTO THE POPLITEAL SPACE (HIATUS ADDUCTORIUS HUNTERI); UPPER SURFACE OF LOWER SEGMENT.

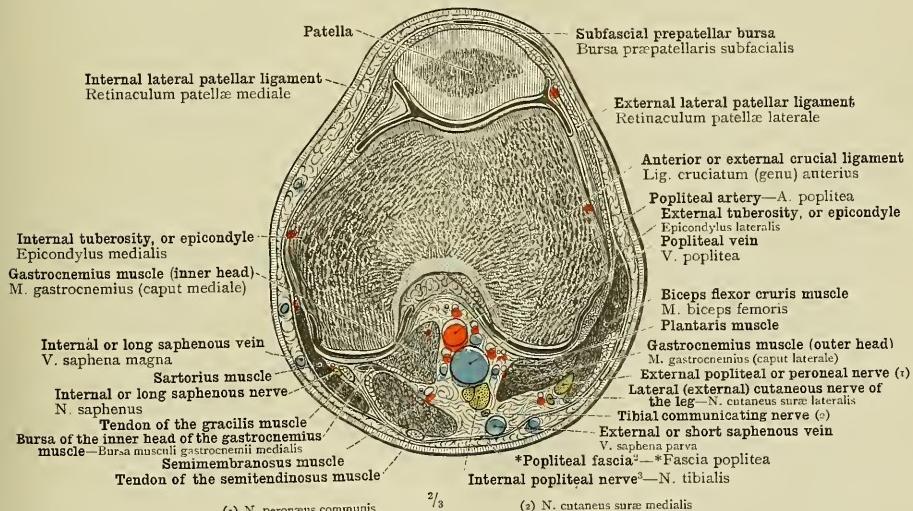


FIG. 1053.—TRANSVERSE SECTION THROUGH THE RIGHT KNEE, PASSING THROUGH THE MIDDLE OF THE PATELLA; UPPER SURFACE OF LOWER SEGMENT.

¹ See Appendix, note #23.

² *Popliteal Fascia*.—The name of *fascia poplitea* is given by the author to that portion of the deep fascia of the lower extremity which forms the roof of the popliteal space. The name is not used by Quain or Macalister.—TR.

³ See Appendix, note #24.

⁴ See Appendix, note #28.

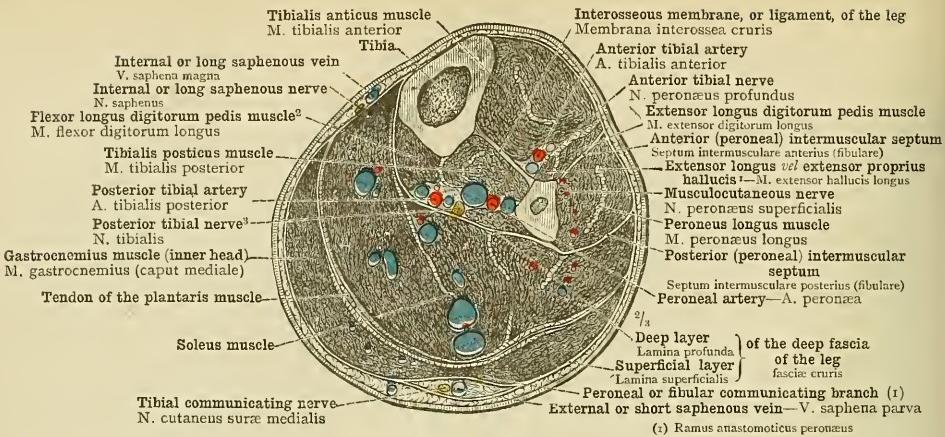


FIG. 1054.—TRANSVERSE SECTION THROUGH THE RIGHT LEG, A LITTLE ABOVE THE MIDDLE; UPPER SURFACE OF LOWER SEGMENT.

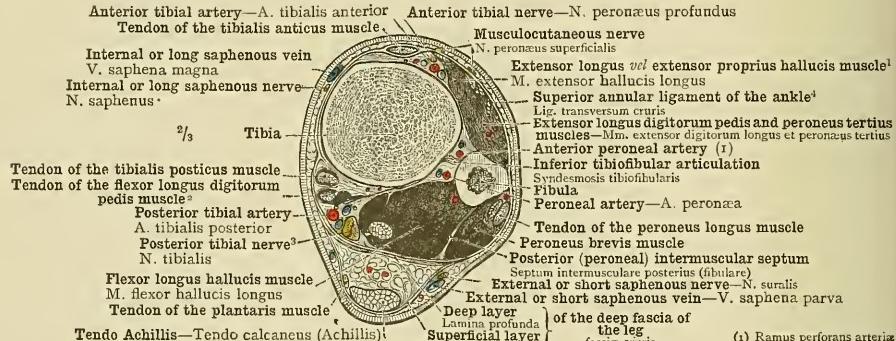


FIG. 1055.—TRANSVERSE SECTION THROUGH THE RIGHT LEG, JUST ABOVE THE ANKLE-JOINT; UPPER SURFACE OF LOWER SEGMENT.

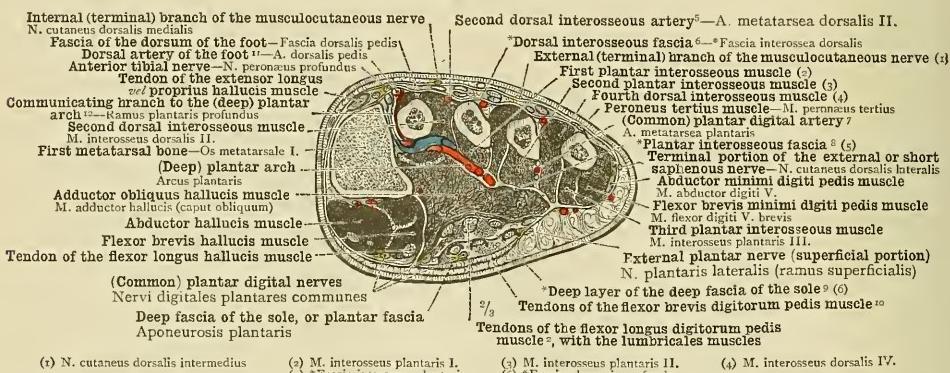


FIG. 1056.—CORONAL SECTION THROUGH THE RIGHT FOOT, PASSING THROUGH THE MIDDLE OF THE FIRST METATARSAL BONE; SURFACE OF DISTAL SEGMENT.

¹ Regarding the nomenclature of this muscle, see note ² to p. 364, in Part III.

² See Appendix, note 22.

³ See Appendix, note 229.

⁴ See Appendix, note 225.

⁵ See Appendix, note 225.

⁶ Often known in England by its Latin name of *dorsalis pedis artery*.

⁷ Or *flexor perforans muscle*.

⁸ Now also known as the *upper band of the anterior annular ligament of the ankle*.

⁹ See Appendix, note 225.

¹⁰ See Appendix, note 227.

¹¹ Or *flexor perforans II muscle*.

¹² See Appendix, note 240.

VENÆ TRUNCI
THE VEINS OF THE TRUNK

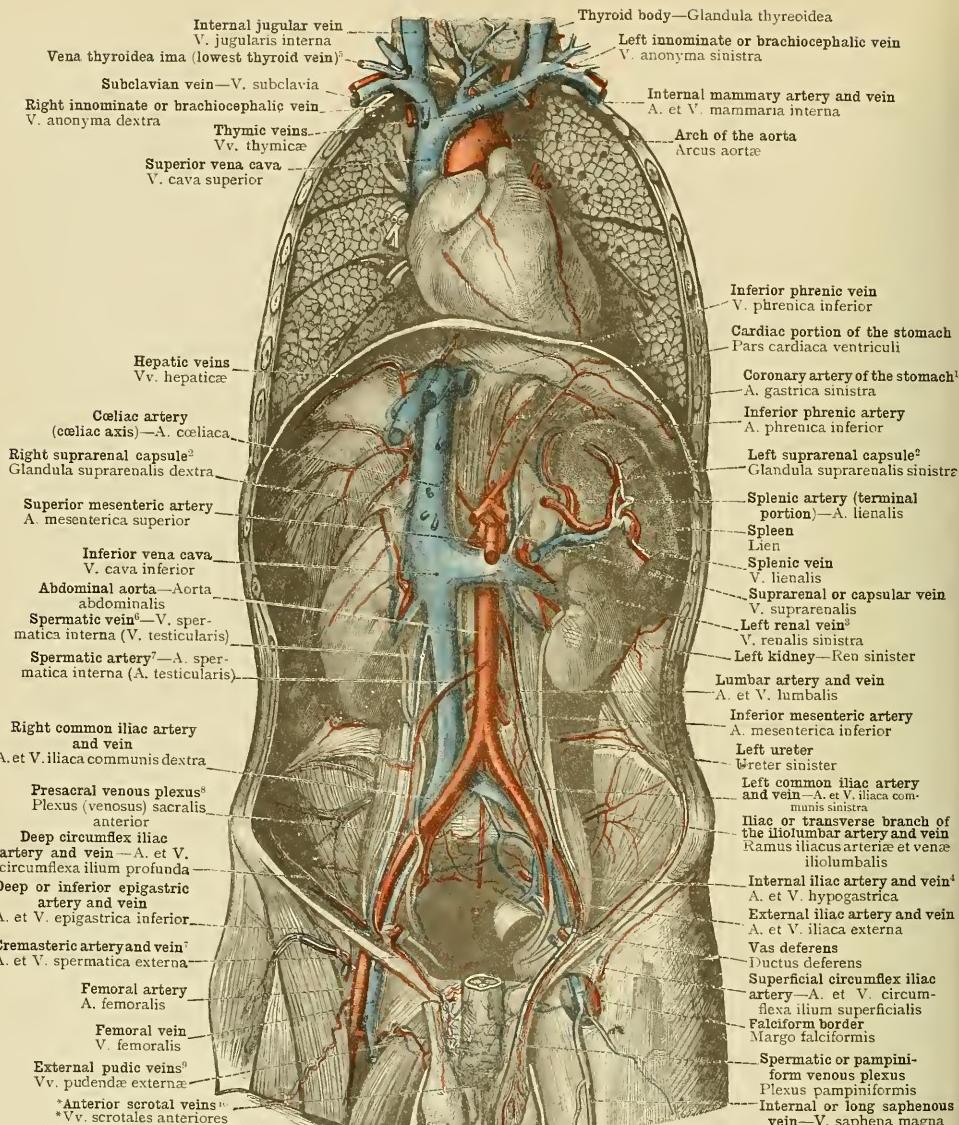
¹ Called by Macalister the *gastric artery*.² Sometimes called the *epigastric veins*. See note ³ to p. 595.³ Companion to the *thyroidea ima artery*. See note ¹ to p. 590.⁴ This vein is called by the author *vena spermatica interna* to distinguish it from the *vena spermatica externa*—the *cremasteric vein* of English anatomists.—Tr.⁵ See Appendix, note 129.⁶ Called by Macalister the *pubic veins*.⁷ See Appendix, note 133.⁸ See Appendix, note 253.⁹ See note on nomenclature of corresponding arteries (note ⁵ to p. 599).¹⁰ See Appendix to Part IV., note 68.² Called also *suprarenal body*, or *adrenal*.⁴ See Appendix, note 120.

FIG 1057.—THE SUPERIOR AND THE INFERIOR VENA CAVA; THE PARIETAL AND THE VISCELAR TRIBUTARIES, RADICES PARIETALES ET VISCERALES, OF THE LATTER. THE ABDOMINAL AORTA, AORTA ABDOMINALIS. SEEN FROM BEFORE.

The System of the Superior and the Inferior Venæ Cavæ.

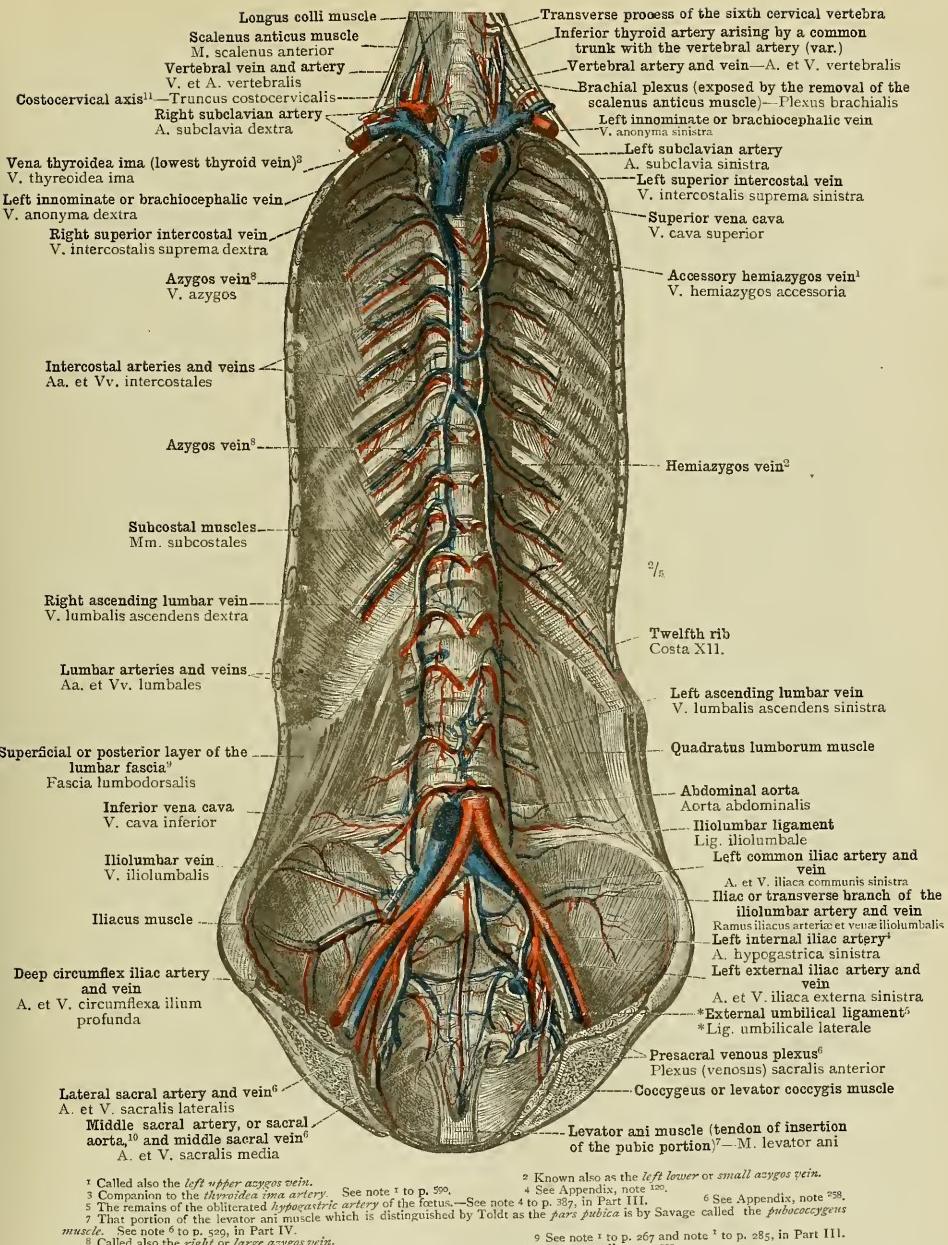
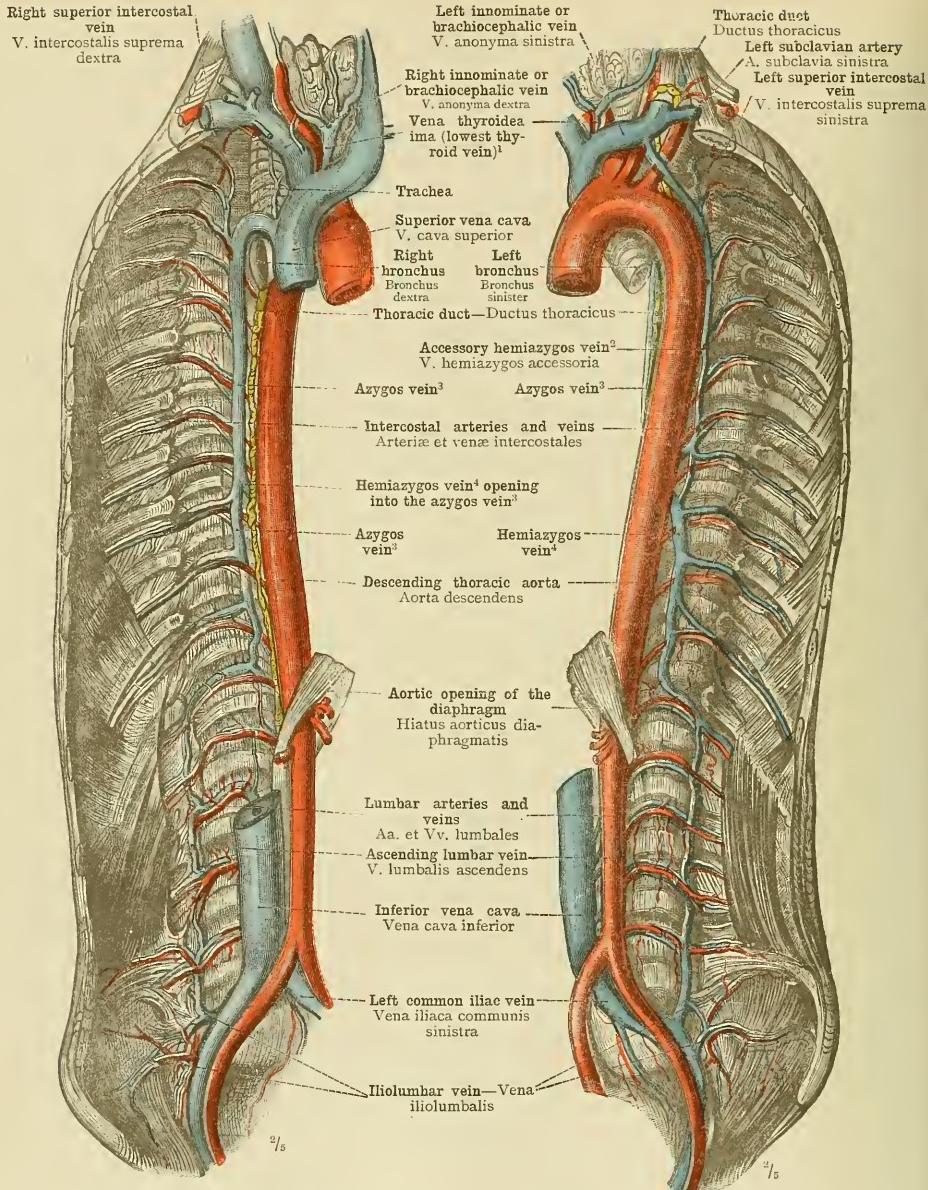


FIG. 1058.—THE VEINS ON THE INNER SURFACE OF THE POSTERIOR WALL OF THE TRUNK. SEEN FROM BEFORE.

The System of the Azygos and Hemiazygos Veins.



¹ Companion to the *thyroidea ima* artery. See note ¹ to p. 59.

² Known also as the *right or large azygos vein*.

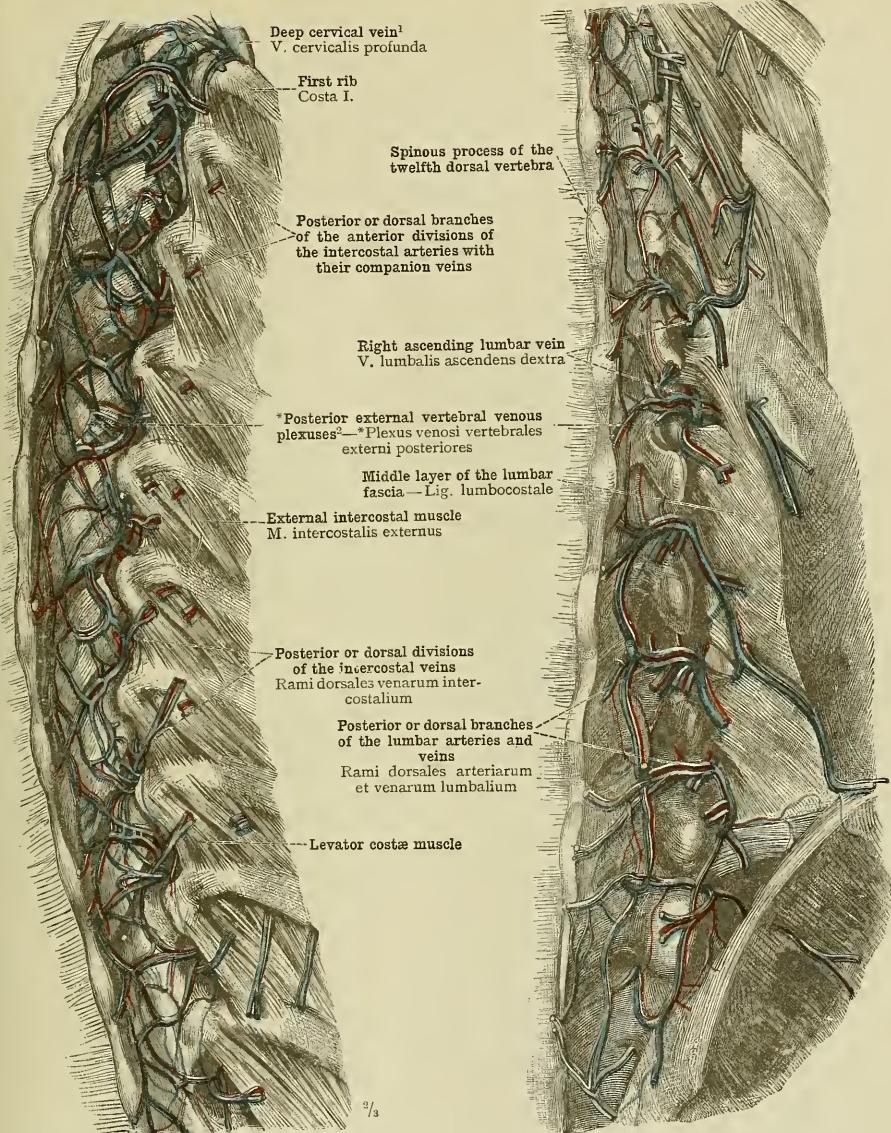
³ Known also as the *left upper azygos vein*.

⁴ Known also as the *left lower or small azygos vein*.

FIG. 1059.—SEEN FROM THE RIGHT SIDE.

FIG. 1060.—SEEN FROM THE LEFT SIDE.

The System of the Azygos and Hemiazygos Veins.



¹ Known also as the *posterior vertebral vein*.

FIG. 1061.—*POSTERIOR EXTERNAL VERTERAL VENOUS PLEXUS (see Appendix, notes 259 and 260) OF THE DORSAL REGION.

See Appendix, notes 259 and 260.

FIG. 1062.—*POSTERIOR EXTERNAL VERTERAL VENOUS PLEXUS (see Appendix, notes 259 and 260) OF THE LUMBAR AND SACRAL REGIONS.

Plexus venosi vertebræ externi posteriores—The posterior external vertebral venous plexuses.

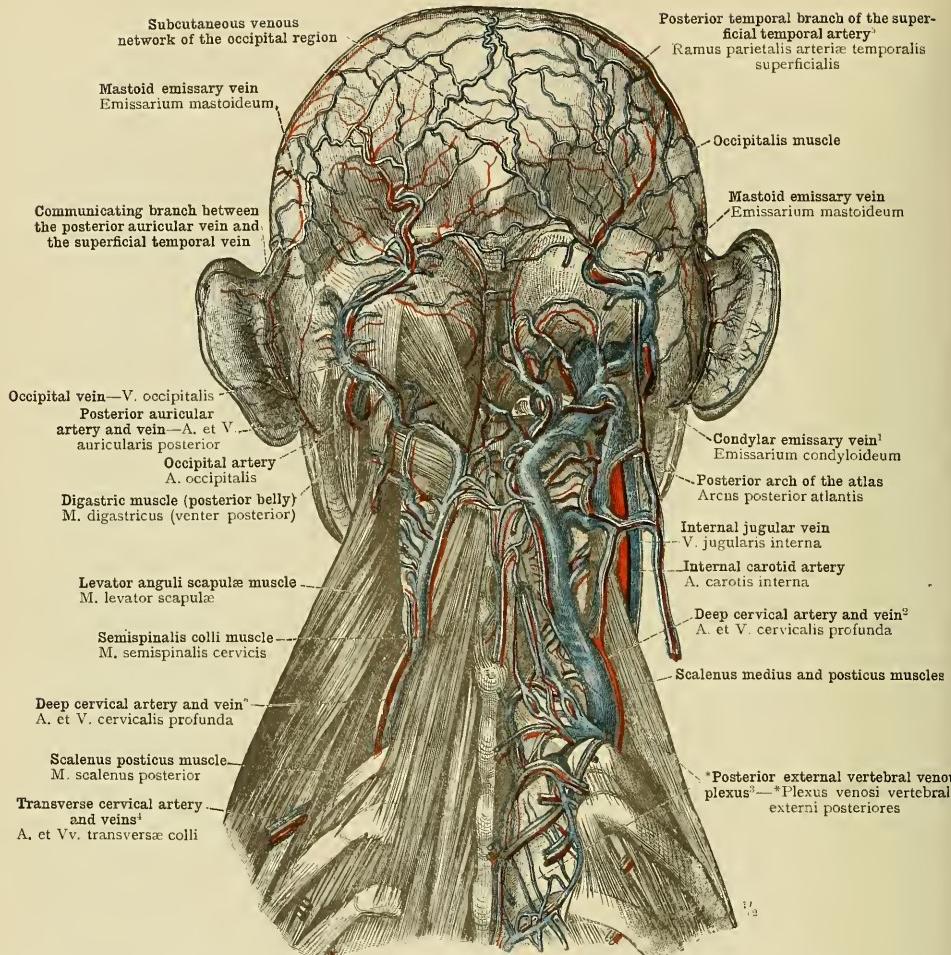
¹ See Appendix, note 261.² See Appendix, notes 259 and 260.³ See Appendix, note 168.⁴ The deep cervical vein is known also as the posterior vertebral vein.⁵ See Appendix, note 262.

FIG. 1063.—THE VEINS OF THE OCCIPITAL REGION AND THE DEEP VEINS OF THE BACK OF THE NECK, SEEN FROM BEHIND: THE SUBCUTANEOUS VENOUS NETWORK OF THE OCCIPITAL REGION; THE OCCIPITAL VEIN, VENA OCCIPITALIS, CONTINUOUS BELOW WITH THE DEEP CERVICAL VEIN, VENA CERVICALIS PROFUNDA; THE MASTOID EMISSARY VEIN, EMISSARIUM MASTOIDEUM, AND THE CONDYLAR EMISSARY VEIN, EMISSARIUM CONDYOIDEUM (see Appendix, note 261); THE *POSTERIOR EXTERNAL VERTEBRAL VENOUS PLEXUS, *PLEXUS VENOSUS VERTEBRALES POSTERIORES (see Appendix, notes 259 and 260); THE POSTERIOR AURICULAR VEIN, VENA AURICULARIS POSTERIOR.

On the left side the levator anguli scapulae muscle was drawn outwards, and, after the removal of the complexus or semispinalis capitis muscle, the short posterior cranovertebral or suboccipital muscles and the semispinalis colli muscle were exposed. On the right side these muscles also were removed, and the *posterior external vertebral venous plexus was thus laid bare.

The Deep Veins of the Nuchal and Occipital Regions.

Torcular Herophili, or confluence of the sinuses⁴.—Confluens sinuum.

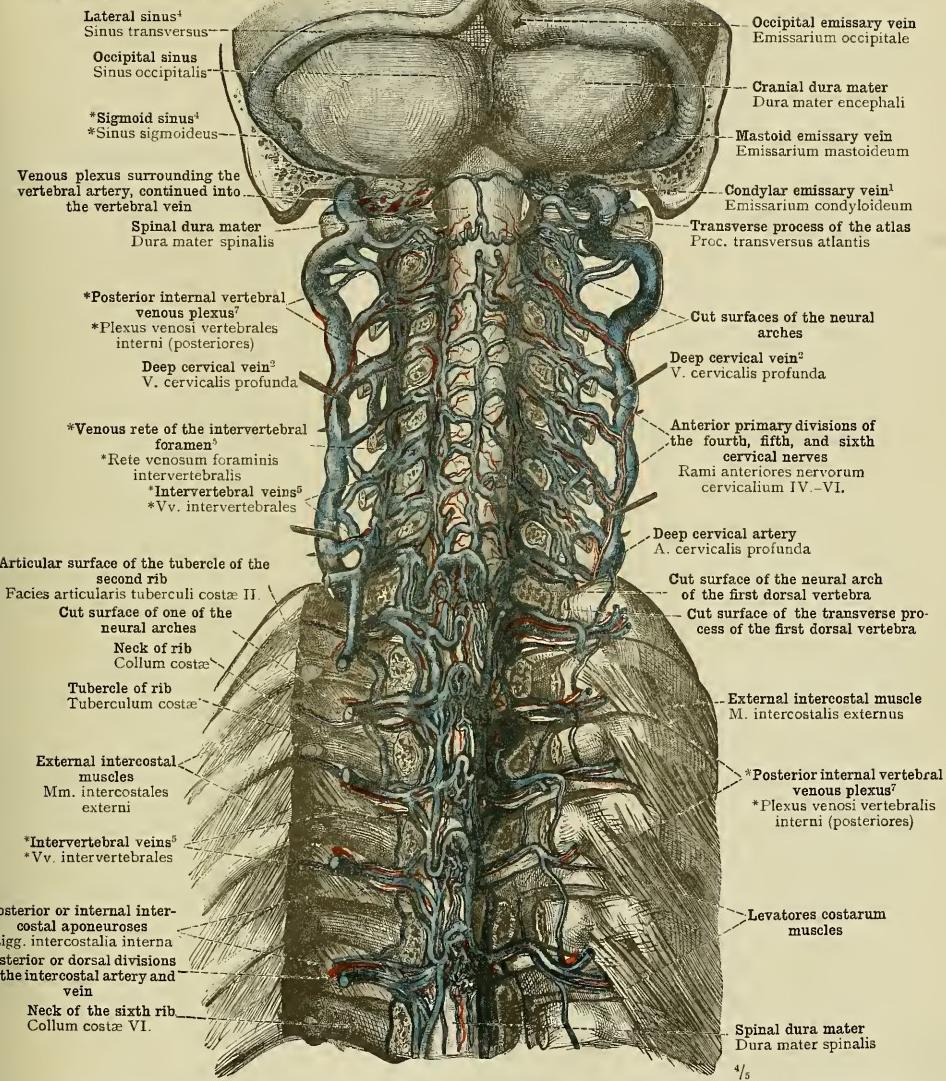


FIG. 1064.—*INTERNAL VERTEBRAL VENOUS PLEXUS (see Appendix, notes 259 and 263), LAID BARE FROM BEHIND BY OPENING THE SPINAL CANAL IN THE CERVICAL AND THE UPPER DORSAL PORTIONS OF THE VERTERAL COLUMN; THE CONNEXIONS OF THE PLEXUS WITH THE DEEP CERVICAL VEIN (see note 2 above) AND WITH THE INTERCOSTAL VEINS. THE VENOUS SINUSES OF THE CRANIUM (MENINGEAL SINUSES), SINUS DURÆ MATRIS.

¹ See Appendix, note 261.

⁴ See Appendix, note 264.

⁷ See Appendix, notes 259 and 263.

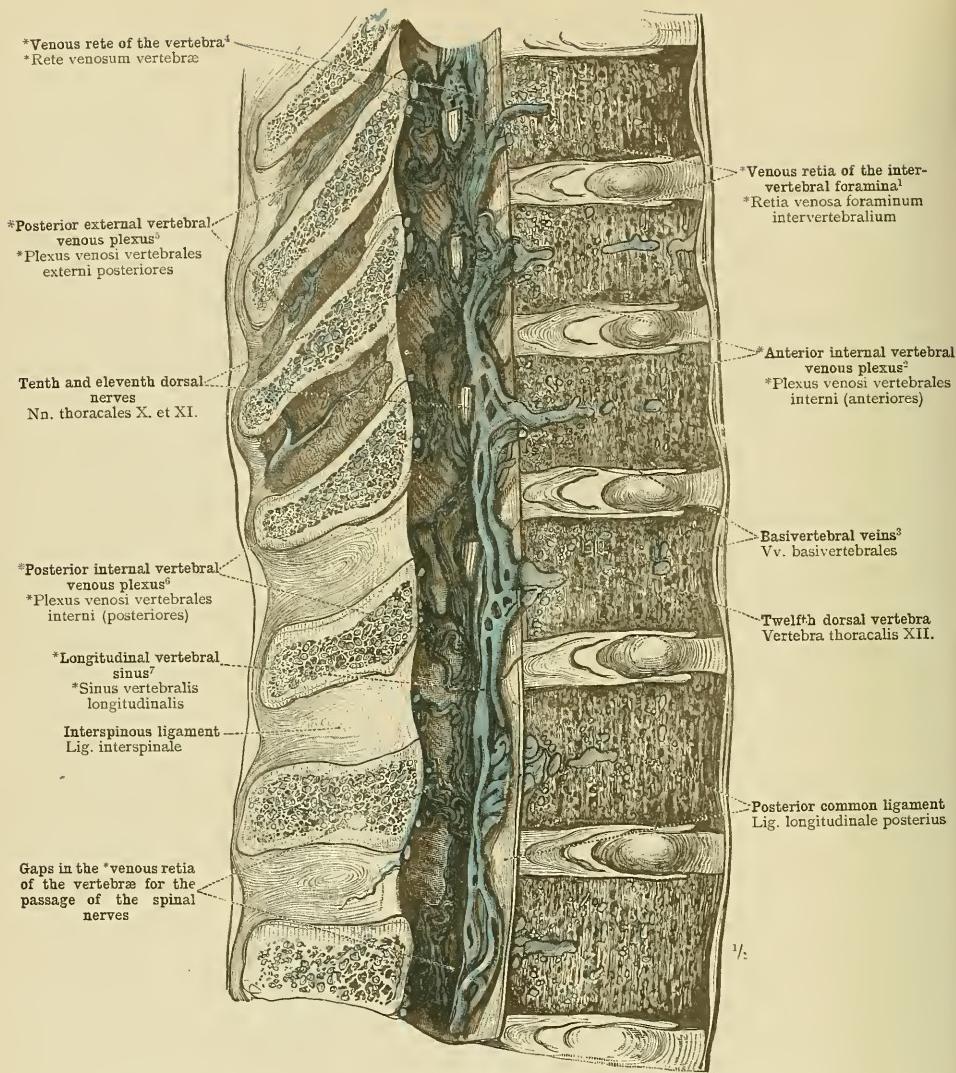
² Known also as the posterior vertebral vein.

⁵ See Appendix, note 265.

³ See Appendix, note 253.

⁶ See Appendix, note 266.

Plexus venosi vertebrales interni.—The *internal vertebral venous plexus.—V. cervicalis profunda.—The deep cervical vein.



¹ See Appendix, note 265.

⁴ See Appendix, note 269.

⁷ Or anterior longitudinal spinal vein. See Appendix, notes 260 and 267.

² See Appendix, notes 259 and 267.

⁵ See Appendix, notes 259 and 266.

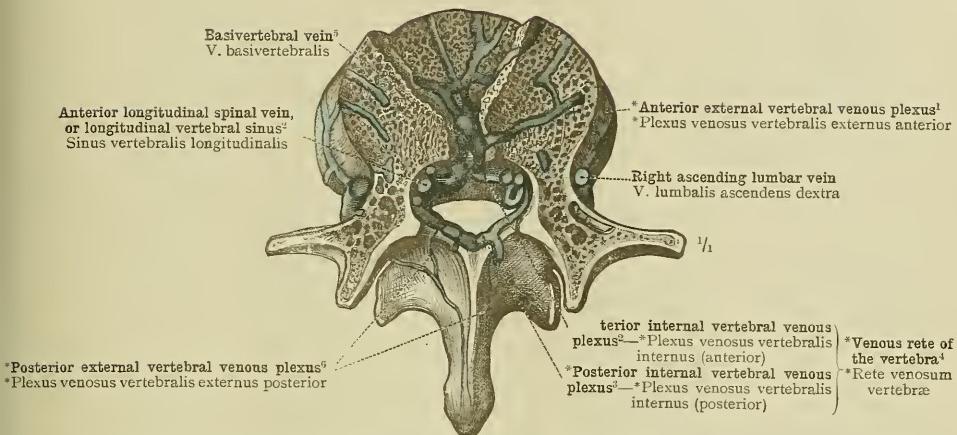
³ See Appendix, note 268.

⁶ See Appendix, notes 259 and 263.

FIG. 1065.—THE *INTERNAL VERTEBRAL VENOUS PLEXUSES, *PLEXUS VENOSI VERTEBRALES INTERNI (see Appendix, notes 259 and 268), DISPLAYED IN THE LEFT HALF OF A MEDIAN SAGITTAL SECTION THROUGH THE FOUR LOWER-MOST DORSAL AND THE TWO UPPER-MOST LUMBAR VERTEBRAE; THEIR CONNEXION WITH THE BASIVERTEBRAL VEINS, VENE BASIVERTEBRALES (see Appendix, note 268), AND THEIR RELATION TO THE EMERGING ROOTS OF THE SPINAL NERVES.

The posterior common ligament was removed from the dorsal vertebrae, but left intact on the lumbar vertebrae. Between the spinous processes of the eighth, ninth, and tenth dorsal vertebrae, by the removal of the interspinous ligaments, portions of the *posterior external vertebral venous plexus have also been exposed.

Plexus venosi vertebrales interni—The internal vertebral venous plexus.



¹ *Anterior External Vertebral Venous Plexus.—Quain calls the veins that combine to form this plexus the *external veins of the bodies of the vertebrae*. According to Von Langer and Toldt, the *plexus venosus vertebræ externi anteriores* are not equally developed throughout the spine, being found only in the cervical and sacral regions. (See also Appendix, note 259.)—TR.

² See Appendix, notes 259 and 267.

³ See Appendix, note 268.

³ See Appendix, notes 259 and 268.

⁴ See Appendix, note 269.

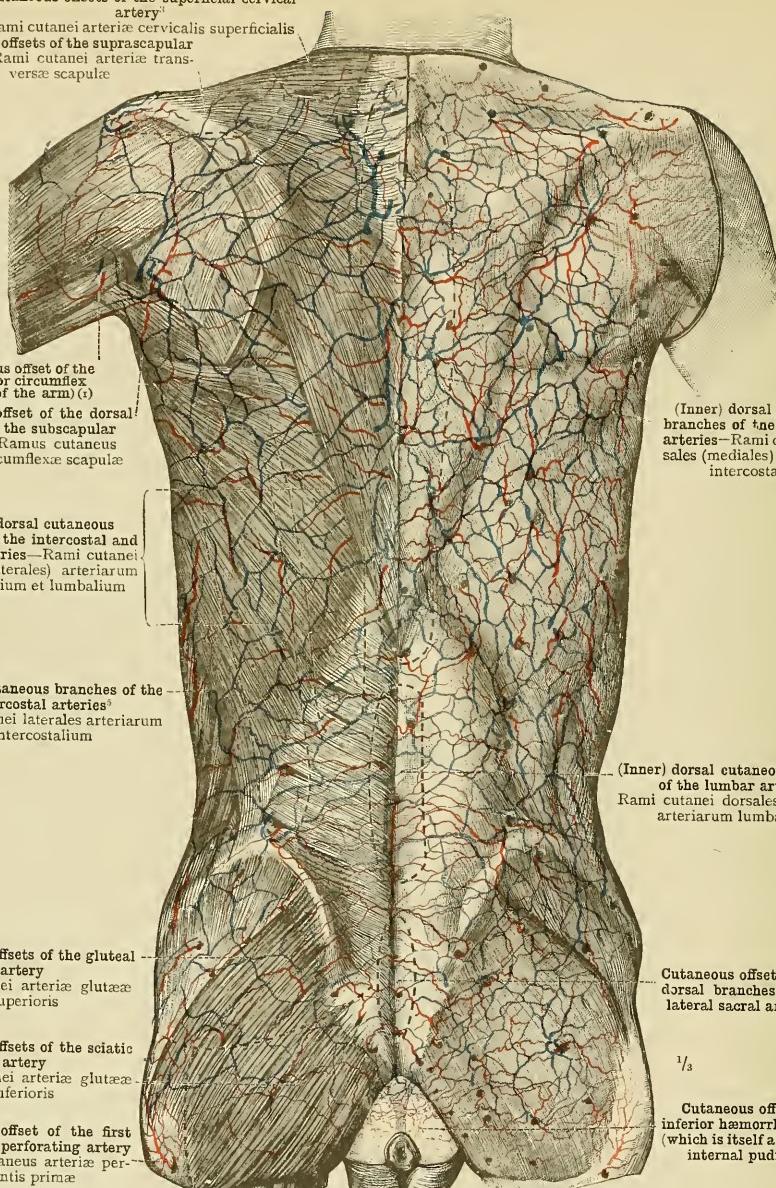
FIG. 1066.—THE BASIVERTEBRAL VEINS, VENÆ BASIVERTEBRALES, THEIR CONNEXION WITH THE *ANTERIOR INTERNAL AND THE *ANTERIOR EXTERNAL VERTEBRAL VENOUS PLEXUSES, *PLEXUS VENOSI VERTEBRALES ANTERIORES; AND THE *VENOUS RETE OF THE VERTEBRA, RETE VENOSUM VERTEBRAE, A SEGMENTAL PORTION OF THE *ANTERIOR INTERNAL AND *POSTERIOR INTERNAL VERTEBRAL VENOUS PLEXUS, *PLEXUS VENOSI VERTEBRALES INTERNI; SEEN FROM ABOVE IN A HORIZONTAL SECTION THROUGH A LUMBAR VERTEBRA.

In order to bring into view the ramifications of the basivertebral veins at different levels, a part of the substance of the body of the vertebra was cut away below the general level of the section.

Vv. basivertebrales—The basivertebral veins.—Plexus venosi vertebræ—The vertebral venous plexuses.

Cutaneous offsets of the superficial cervical artery¹

Cutaneous offsets of the suprascapular artery²—Rami cutanei arteriae transversae scapulae



¹ Called by Macalister the *anal artery*.

² See Appendix, note 139.

³ Regarding the author's use of the term *arteria cervicalis superficialis*, see Appendix, notes 134, 135, 172, and 205.

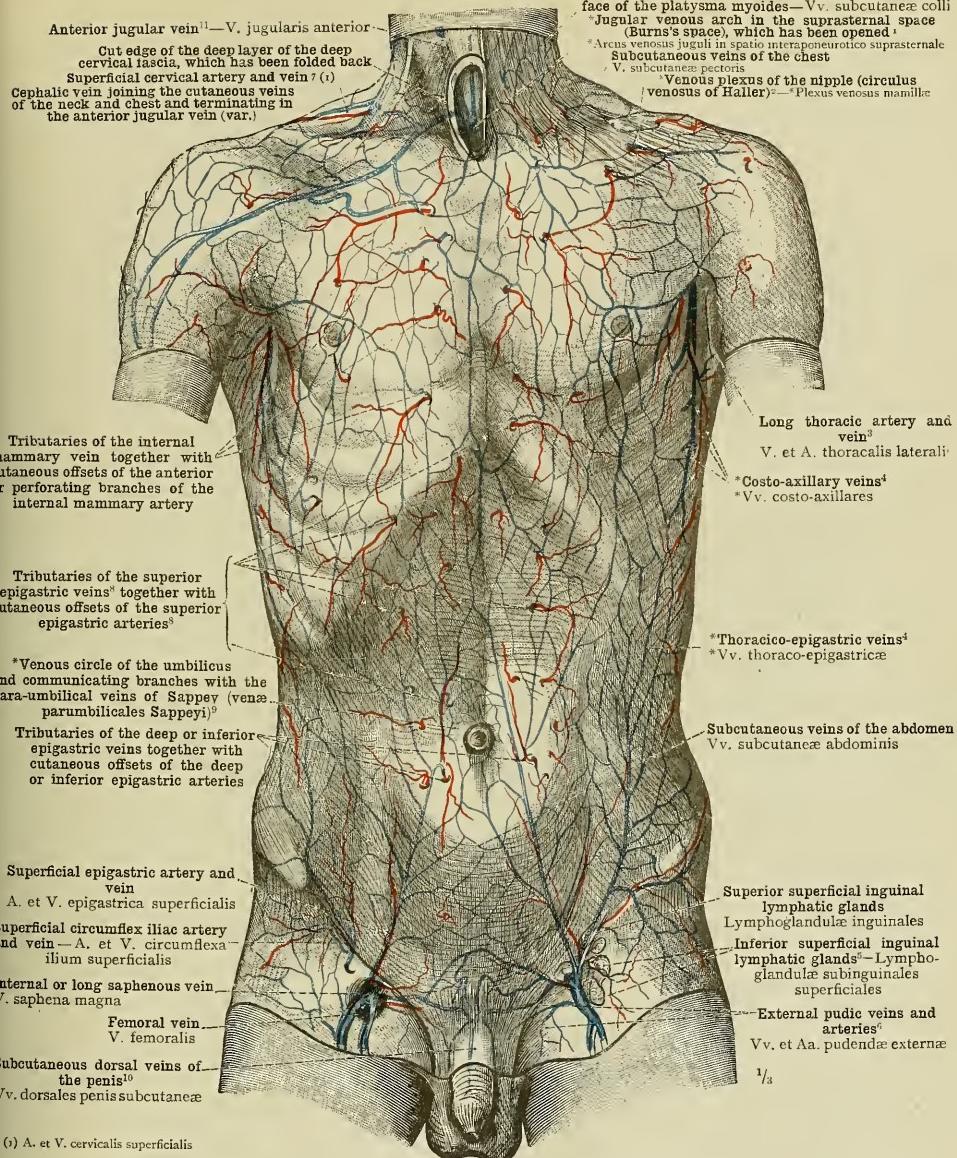
⁴ Called also the *transverse scapular* or *transverse humeral artery*.

⁵ Known also as the *lateral perforating branches*. See note 1 to p. 589.

⁶ Or *dorsalis scapulae artery*.

FIG. 1067.—THE SUBCUTANEOUS ARTERIES AND VEINS OF THE POSTERIOR WALL OF THE TRUNK.

The Subcutaneous Bloodvessels of the Posterior Wall of the Trunk.



1/3

¹ See Appendix, note 123.² See Appendix, note 270.³ See Appendix, note 271.⁴ See Appendix, note 272.⁵ Often called the *femoral lymphatic glands*.⁶ See Appendix, note 273.⁷ See Appendix, notes 134, 135, 172, and 208.⁸ The *superior epigastric* vessels are known also as the *abdominal* branches of the *internal mammary* vessels.⁹ See Appendix, note 273.¹⁰ See Appendix, note 274.¹¹ See Appendix, note 197.¹² Known also as the *external mammary artery* and *vein*.¹³ See Appendix, note 270.¹⁴ See Appendix, note 197.¹⁵ See Appendix, note 270.¹⁶ See Appendix, note 270.¹⁷ See Appendix, note 270.¹⁸ See Appendix, note 270.¹⁹ See Appendix, note 270.²⁰ See Appendix, note 270.²¹ See Appendix, note 270.²² See Appendix, note 270.²³ See Appendix, note 270.²⁴ See Appendix, note 270.²⁵ See Appendix, note 270.²⁶ See Appendix, note 270.²⁷ See Appendix, note 270.²⁸ See Appendix, note 270.²⁹ See Appendix, note 270.³⁰ See Appendix, note 270.³¹ See Appendix, note 270.³² See Appendix, note 270.³³ See Appendix, 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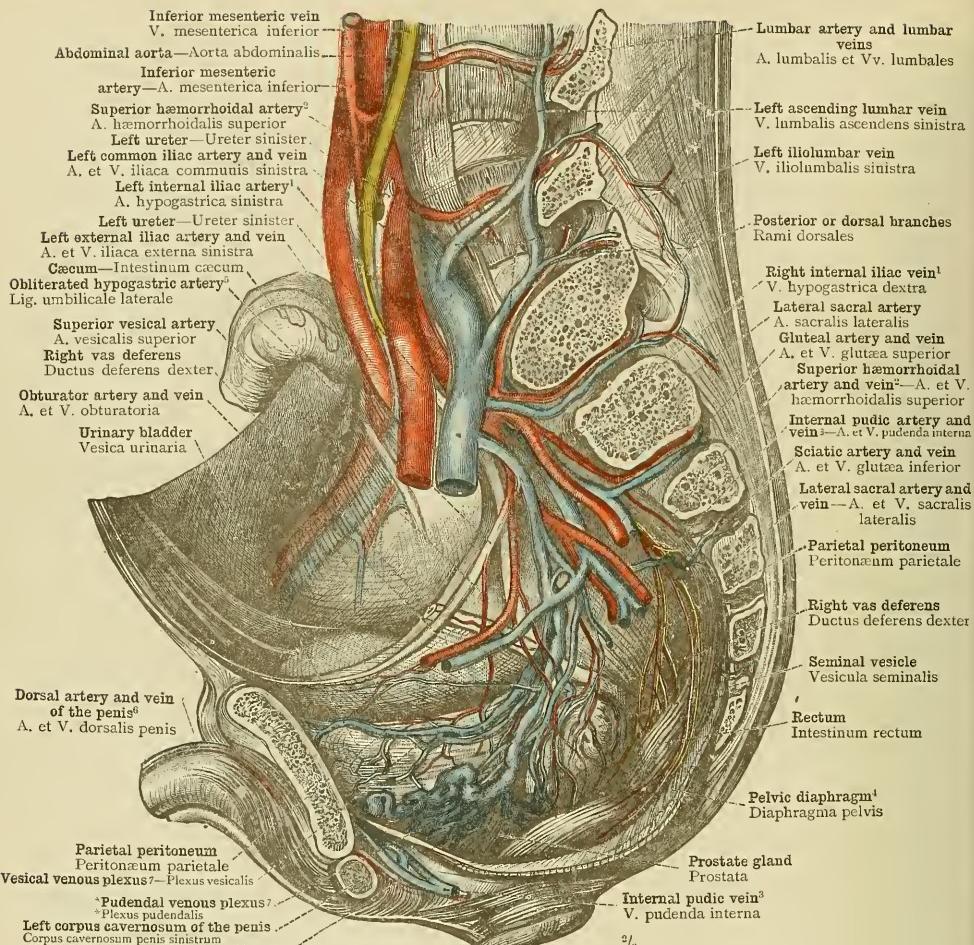


FIG. 1069.—THE VENOUS PLEXUSES OF THE MALE PELVIS; SEEN FROM THE LEFT SIDE.

By a section, which began in front a little to the left of the median plane, and behind passed through the left row of sacral foramina, the left lateral wall of the pelvis was removed, the parietal peritoneum covering this wall being, however, retained up to the level of its reflection on to the urinary bladder and the rectum. The extraperitoneal portions of these organs were exposed, together with the vessels by which they are surrounded; the pelvic diaphragm (see Appendix, note¹⁴⁰) was cut away close to the rectum and the bladder and drawn slightly downwards. The inferior mesenteric vein has been injected with a yellow material.

The Veins of the Male Pelvis.

¹ See Appendix, note¹²⁹.

² Replacing the nomenclature of the *internal pudic artery*, see Appendix, note¹³⁹. The same considerations apply to the nomenclature of the companion *vein*.—Tr.

³ See Appendix, note¹⁴².

⁴ See Appendix, note¹⁴³.

⁵ Called by Macalister the *superior rectal artery and vein*.

⁶ Or "external umbilical ligament." See Appendix, note¹⁴³.

⁷ See Appendix, note¹⁴⁵.

⁸ See Appendix, note¹⁴².

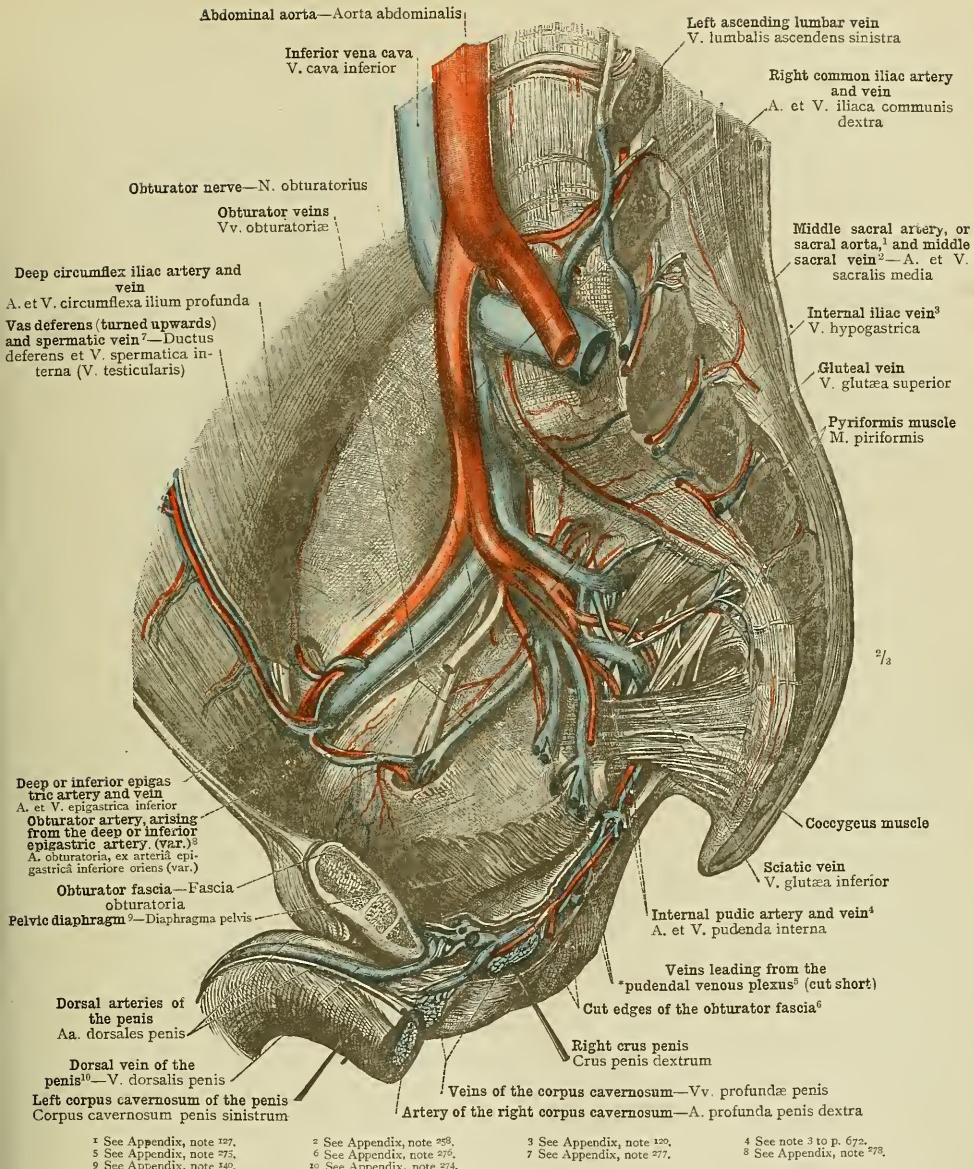


FIG. 1070.—THE VEINS OF THE RIGHT LATERAL WALL OF THE PELVIS AND OF THE MALE EXTERNAL GENITAL ORGANS. SEEN FROM THE LEFT SIDE

The Veins of the Male Pelvis.

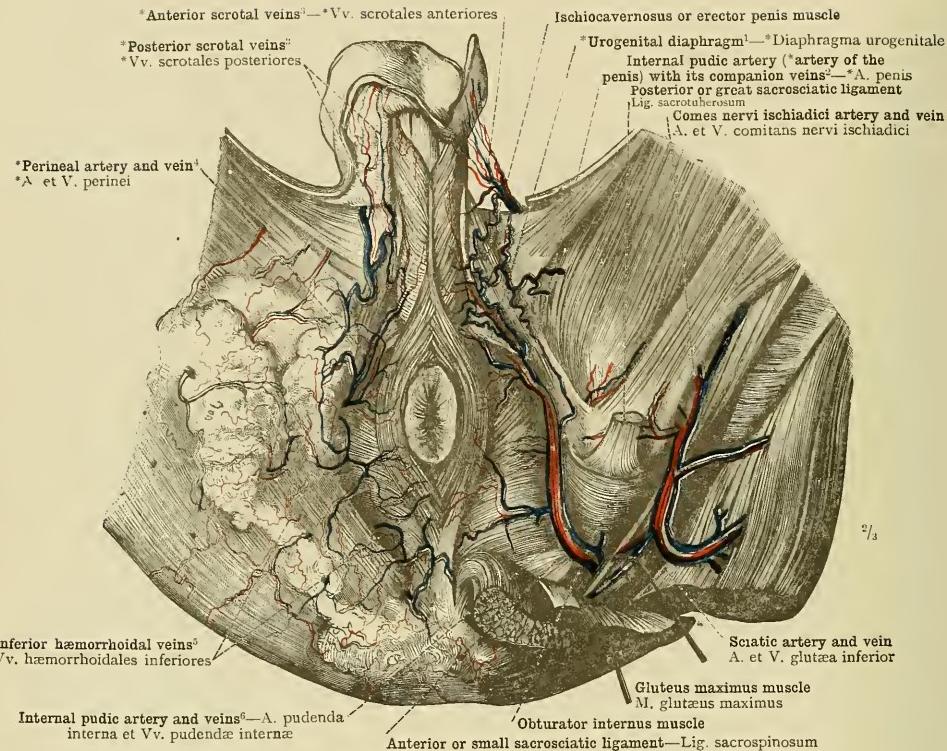


FIG. 1071.—THE SUPERFICIAL AND DEEP VEINS OF THE MALE PERINEAL REGION.

On the right side of the body the superficial bloodvessels were dissected out and the subcutaneous fat was partially preserved. On the left side of the body the gluteus maximus muscle and the posterior or great sacrosciatic ligament (*ligamentum sacrotuberosum*) were cut across and the segments were drawn apart, in order to display the passage of the internal pudic artery and veins through the small sacrosciatic foramen (*foramen ischiadicum minus*) ; these vessels were also exposed in the outer wall of the ischiorectal fossa. The left testis was removed, in order to lay bare the *anterior scrotal veins and their anastomoses with the *posterior scrotal veins.

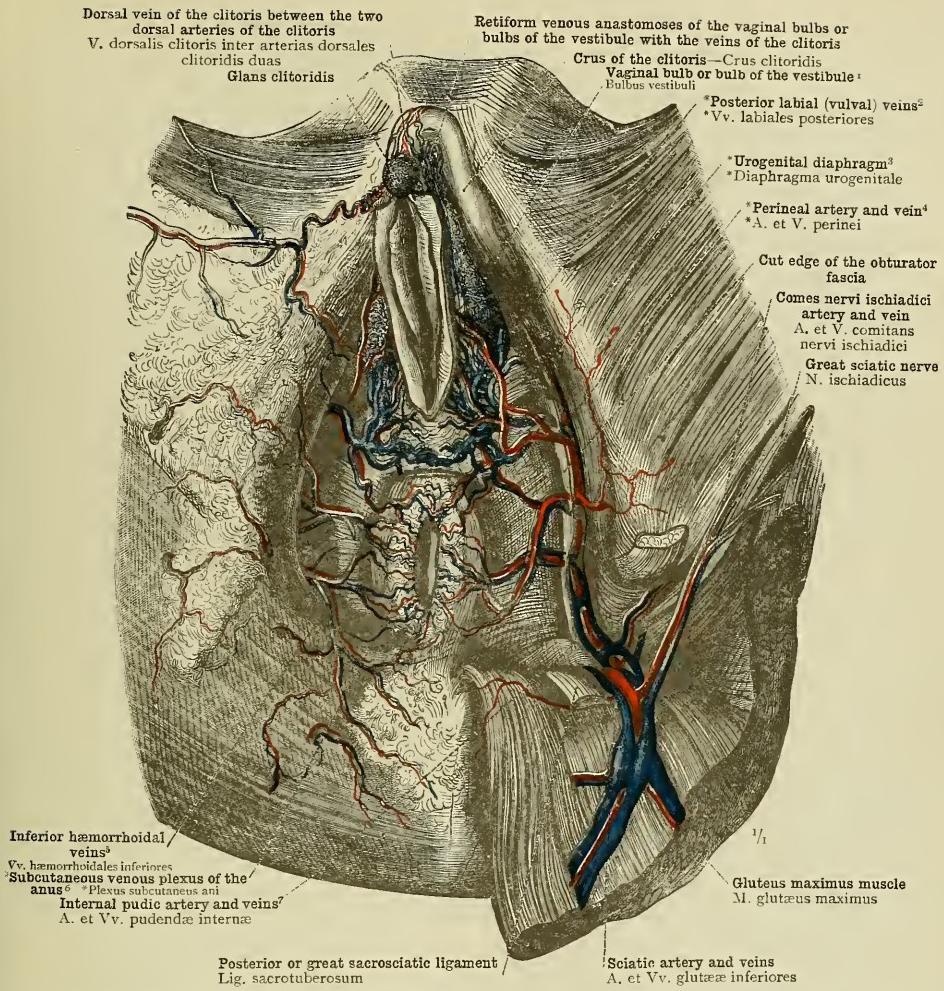
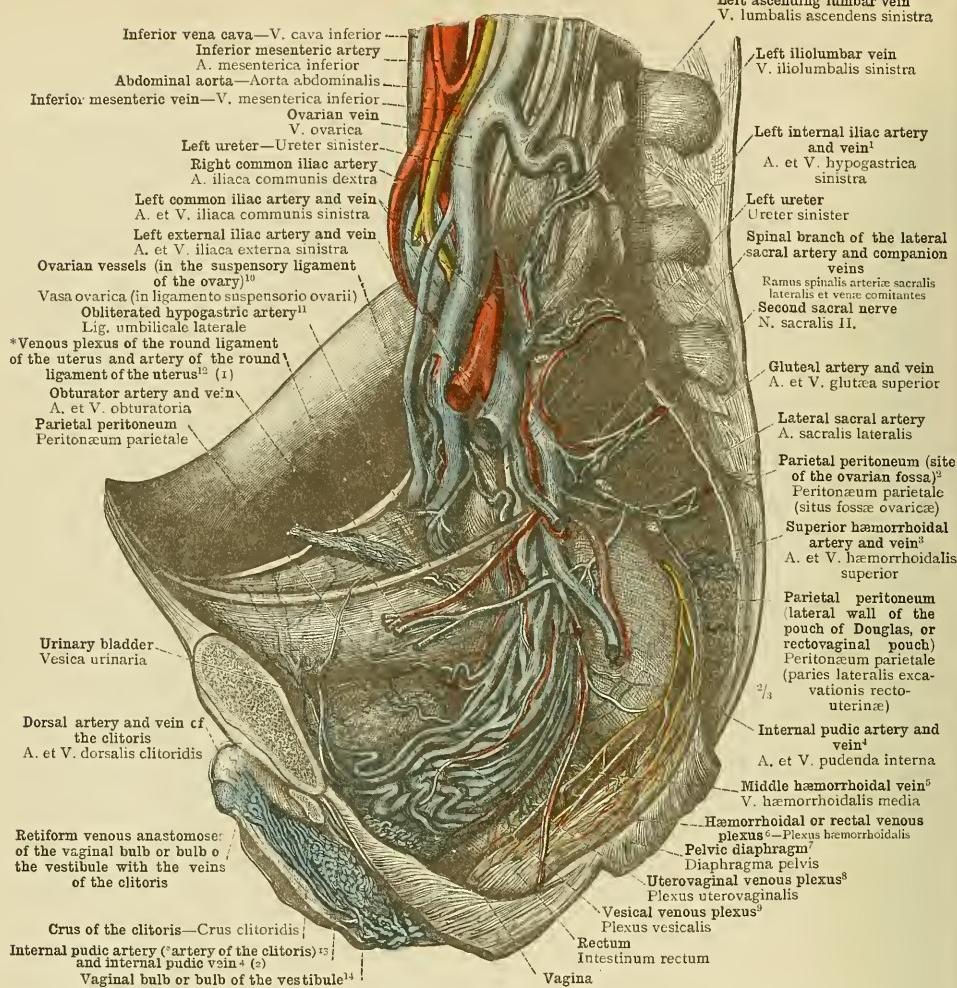
¹ See Appendix to Part IV., note 91.² See note 5 to p. 674.³ See Appendix, note 13.⁴ See Appendix, note 279.⁵ See Appendix, note 14.⁶ See note 3 to p. 672.⁷ See note 4 to p. 675.

FIG. 1072.—THE SUPERFICIAL AND DEEP VEINS OF THE FEMALE PERINEAL REGION. THE INFERIOR HEMORHOIDAL VEINS (see note ⁵ to p. 674), VENÆ HEMORHOIDALES INFERIORES; THE *SUBCUTANEOUS VENOUS PLEXUS OF THE ANUS (see Appendix, note 279), *PLEXUS SUBCUTANEUS ANI; THE INTERNAL PUBIC VEINS (see note ³ to p. 672), VENÆ PUDENDÆ INTERNÆ; THE *POSTERIOR LABIAL (OR VULVAL) VEINS (see Appendix, note 138), VENÆ LABIALES POSTERIORES; THE DORSAL VEINS OF THE CLITORIS, VENÆ DORSALES CLITORIDIIS, AND THE VAGINAL BULB OR BULB OF THE VESTIBULE (see note ¹ above), BULBUS VESTIBULI.

On the right side of the body, the superficial vessels were dissected out. On the left side of the body, the gluteus maximus muscle and the posterior or great sacrosciatic ligament were cut across and the segments were widely separated; by cutting through the obturator fascia where it covers the internal pudic vessels in the outer wall of the ischiorectal fossa, these vessels were exposed in their passage through Alcock's canal (see Appendix, notes ¹⁴⁵ and ¹⁵¹). The sphincter vaginae or bulbocavernosus muscle was removed, together with the anterior extremity of the levator ani muscle, in order to lay bare the vaginal bulbs or bulbs of the vestibule (see note ¹ above) and the transverse anastomoses of the veins that drain the blood away from these structures.

The Veins of the Female Perineal Region.



(x) *Plexus venosus ligamenti teretis uteri et arteria ligamenti teretis uteri

(z) *A. clitoridis et V. pudenda interna

¹ See Appendix, note 120.² A description of the ovarian fossa or *fossa ovarii* (*fossa ovarij*, Quain) is given in the Appendix to Part IV., note 79.—Tr.³ Called the middle rectal vein.⁴ See Appendix, note 142.⁵ This ligament is known also as the *infundibulopelvic* or *ovario-pelvic fold* or *ligament*.⁶ Or *external umbilical ligament*. See Appendix, note 148.⁷ The homologues in the female of the *cremasteric vein* and *artery*, respectively, in the male.—Tr.⁸ See Appendix, note 150.¹ See note 3 to p. 672.² See Appendix, note 281.³ See Appendix, note 275.⁴ See Appendix, note 97.⁵ See Appendix, note 276.⁶ See Appendix, note 277.⁷ See Appendix, note 278.⁸ See Appendix, note 279.⁹ See Appendix, note 280.¹⁰ See Appendix, note 281.¹¹ See Appendix, note 282.¹² See Appendix, note 283.¹³ See Appendix, note 284.¹⁴ See Appendix, note 285.¹⁵ See Appendix, note 286.¹⁶ See Appendix, note 287.¹⁷ See Appendix, note 288.¹⁸ See Appendix, note 289.¹⁹ See Appendix, note 290.²⁰ See Appendix, note 291.²¹ See Appendix, note 292.²² See Appendix, note 293.²³ See Appendix, note 294.²⁴ See Appendix, note 295.²⁵ See Appendix, note 296.²⁶ See Appendix, note 297.²⁷ See Appendix, note 298.²⁸ See Appendix, note 299.²⁹ See Appendix, note 300.³⁰ See Appendix, note 301.³¹ See Appendix, note 302.³² See Appendix, note 303.³³ See Appendix, note 304.³⁴ See Appendix, note 305.³⁵ See Appendix, note 306.³⁶ See Appendix, note 307.³⁷ See Appendix, note 308.³⁸ See Appendix, note 309.³⁹ See Appendix, note 310.⁴⁰ See Appendix, note 311.⁴¹ See Appendix, note 312.⁴² See Appendix, note 313.⁴³ See Appendix, note 314.⁴⁴ See Appendix, note 315.⁴⁵ See Appendix, note 316.⁴⁶ See Appendix, note 317.⁴⁷ See Appendix, note 318.⁴⁸ See Appendix, note 319.⁴⁹ See Appendix, note 320.⁵⁰ See Appendix, note 321.⁵¹ See Appendix, note 322.⁵² See Appendix, note 323.⁵³ See Appendix, note 324.⁵⁴ See Appendix, note 325.⁵⁵ See Appendix, note 326.⁵⁶ See Appendix, note 327.⁵⁷ See Appendix, note 328.⁵⁸ See Appendix, note 329.⁵⁹ See Appendix, note 330.⁶⁰ See Appendix, note 331.⁶¹ See Appendix, note 332.⁶² See Appendix, note 333.⁶³ See Appendix, note 334.⁶⁴ See Appendix, note 335.⁶⁵ See Appendix, note 336.⁶⁶ See Appendix, note 337.⁶⁷ See Appendix, note 338.⁶⁸ See Appendix, note 339.⁶⁹ See Appendix, note 340.⁷⁰ See Appendix, note 341.⁷¹ See Appendix, note 342.⁷² See Appendix, note 343.⁷³ See Appendix, note 344.⁷⁴ See Appendix, note 345.⁷⁵ See Appendix, note 346.⁷⁶ See Appendix, note 347.⁷⁷ See Appendix, note 348.⁷⁸ See Appendix, note 349.⁷⁹ See Appendix, note 350.⁸⁰ See Appendix, note 351.⁸¹ See Appendix, note 352.⁸² See Appendix, note 353.⁸³ See Appendix, note 354.⁸⁴ See Appendix, note 355.⁸⁵ See Appendix, note 356.⁸⁶ See Appendix, note 357.⁸⁷ See Appendix, note 358.⁸⁸ See Appendix, note 359.⁸⁹ See Appendix, note 360.⁹⁰ See Appendix, note 361.⁹¹ See Appendix, note 362.⁹² See Appendix, note 363.⁹³ See Appendix, note 364.⁹⁴ See Appendix, note 365.⁹⁵ See Appendix, note 366.⁹⁶ See Appendix, note 367.⁹⁷ See Appendix, note 368.⁹⁸ See Appendix, note 369.⁹⁹ See Appendix, note 370.¹⁰⁰ See Appendix, note 371.¹⁰¹ See Appendix, note 372.¹⁰² See Appendix, note 373.¹⁰³ See Appendix, note 374.¹⁰⁴ See Appendix, note 375.¹⁰⁵ See Appendix, note 376.¹⁰⁶ See Appendix, note 377.¹⁰⁷ See Appendix, note 378.¹⁰⁸ See Appendix, note 379.¹⁰⁹ See Appendix, note 380.¹¹⁰ See Appendix, note 381.¹¹¹ See Appendix, note 382.¹¹² See Appendix, note 383.¹¹³ See Appendix, note 384.¹¹⁴ See Appendix, note 385.¹¹⁵ See Appendix, note 386.¹¹⁶ See Appendix, note 387.¹¹⁷ See Appendix, note 388.¹¹⁸ See Appendix, note 389.¹¹⁹ See Appendix, note 390.¹²⁰ See Appendix, note 391.¹²¹ See Appendix, note 392.¹²² See Appendix, note 393.¹²³ See Appendix, note 394.¹²⁴ See Appendix, note 395.¹²⁵ See Appendix, note 396.¹²⁶ See Appendix, note 397.¹²⁷ See Appendix, note 398.¹²⁸ See Appendix, note 399.¹²⁹ See Appendix, note 400.¹³⁰ See Appendix, note 401.¹³¹ See Appendix, note 402.¹³² See Appendix, note 403.¹³³ See Appendix, note 404.¹³⁴ See Appendix, note 405.¹³⁵ See Appendix, note 406.¹³⁶ See Appendix, note 407.¹³⁷ See Appendix, note 408.¹³⁸ See Appendix, note 409.¹³⁹ See Appendix, note 410.¹⁴⁰ See Appendix, note 411.¹⁴¹ See Appendix, note 412.¹⁴² See Appendix, note 413.¹⁴³ See Appendix, note 414.¹⁴⁴ See Appendix, note 415.¹⁴⁵ See Appendix, note 416.¹⁴⁶ See Appendix, note 417.¹⁴⁷ See Appendix, note 418.¹⁴⁸ See Appendix, note 419.¹⁴⁹ See Appendix, note 420.¹⁵⁰ See Appendix, note 421.¹⁵¹ See Appendix, note 422.¹⁵² See Appendix, note 423.¹⁵³ See Appendix, note 424.¹⁵⁴ See Appendix, note 425.¹⁵⁵ See Appendix, note 426.¹⁵⁶ See Appendix, note 427.¹⁵⁷ See Appendix, note 428.¹⁵⁸ See Appendix, note 429.¹⁵⁹ See Appendix, note 430.¹⁶⁰ See Appendix, note 431.¹⁶¹ See Appendix, note 432.¹⁶² See Appendix, note 433.¹⁶³ See Appendix, note 434.¹⁶⁴ See Appendix, note 435.¹⁶⁵ See Appendix, note 436.¹⁶⁶ See Appendix, note 437.¹⁶⁷ See Appendix, note 438.¹⁶⁸ See Appendix, note 439.¹⁶⁹ See Appendix, note 440.¹⁷⁰ See Appendix, note 441.¹⁷¹ See Appendix, note 442.¹⁷² See Appendix, note 443.¹⁷³ See Appendix, note 444.¹⁷⁴ See Appendix, note 445.¹⁷⁵ See Appendix, note 446.¹⁷⁶ See Appendix, note 447.¹⁷⁷ See Appendix, note 448.¹⁷⁸ See Appendix, note 449.¹⁷⁹ See Appendix, note 450.¹⁸⁰ See Appendix, note 451.¹⁸¹ See Appendix, note 452.¹⁸² See Appendix, note 453.¹⁸³ See Appendix, note 454.¹⁸⁴ See Appendix, note 455.¹⁸⁵ See Appendix, note 456.¹⁸⁶ See Appendix, note 457.¹⁸⁷ See Appendix, note 458.¹⁸⁸ See Appendix, note 459.¹⁸⁹ See Appendix, note 460.¹⁹⁰ See Appendix, note 461.¹⁹¹ See Appendix, note 462.¹⁹² See Appendix, note 463.¹⁹³ See Appendix, note 464.¹⁹⁴ See Appendix, note 465.¹⁹⁵ See Appendix, note 466.¹⁹⁶ See Appendix, note 467.¹⁹⁷ See Appendix, note 468.¹⁹⁸ See Appendix, note 469.¹⁹⁹ See Appendix, note 470.²⁰⁰ See Appendix, note 471.²⁰¹ See Appendix, note 472.²⁰² See Appendix, note 473.²⁰³ See Appendix, note 474.²⁰⁴ See Appendix, note 475.²⁰⁵ See Appendix, note 476.²⁰⁶ See Appendix, note 477.²⁰⁷ See Appendix, note 478.²⁰⁸ See Appendix, note 479.²⁰⁹ See Appendix, note 480.²¹⁰ See Appendix, note 481.²¹¹ See Appendix, note 482.²¹² See Appendix, note 483.²¹³ See Appendix, note 484.²¹⁴ See Appendix, note 485.²¹⁵ See Appendix, note 486.²¹⁶ See Appendix, note 487.²¹⁷ See Appendix, note 488.²¹⁸ See Appendix, note 489.²¹⁹ See Appendix, note 490.²²⁰ See Appendix, note 491.²²¹ See Appendix, note 492.²²² See Appendix, note 493.²²³ See Appendix, note 494.²²⁴ See Appendix, note 495.²²⁵ See Appendix, note 496.²²⁶ See Appendix, note 497.²²⁷ See Appendix, note 498.²²⁸ See Appendix, note 499.²²⁹ See Appendix, note 500.²³⁰ See Appendix, note 501.²³¹ See Appendix, note 502.

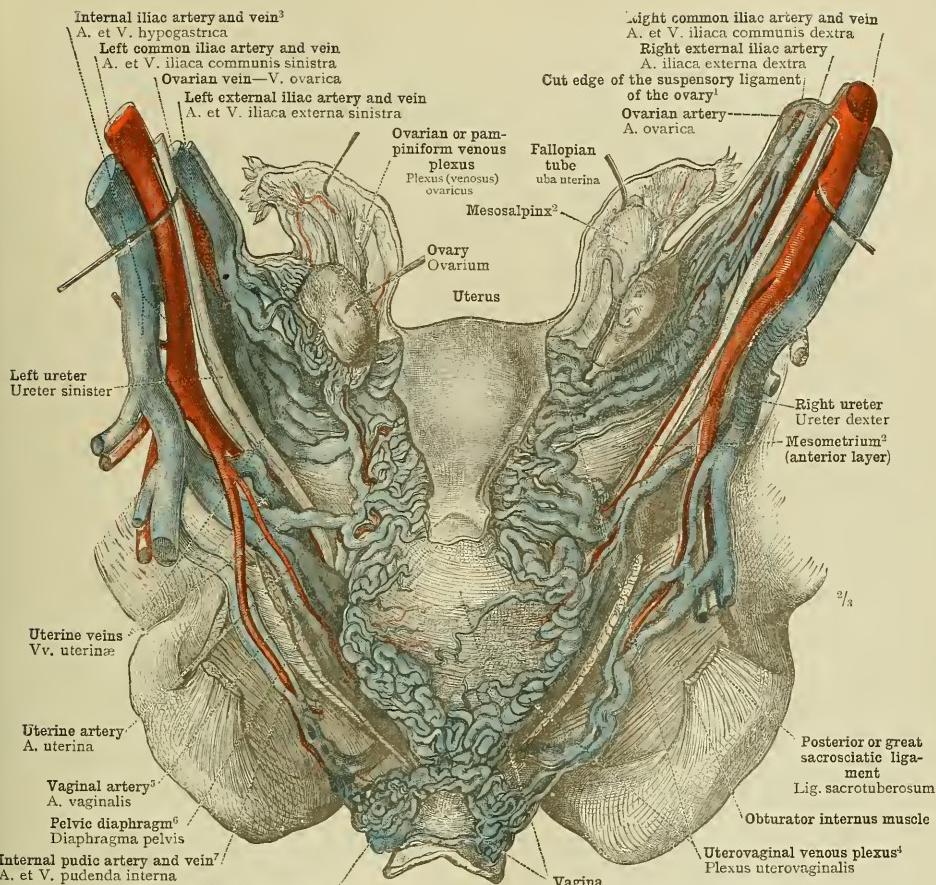


FIG. 1074.—THE VEINS OF THE UTERUS, THE VAGINA, THE OVARIES, AND THE FALLOPIAN TUBES, SEEN FROM BEHIND: THE OVARIAN VEIN, VENA OVARICA, CONTINUED INTO THE OVARIAN OR PAMPINIFORM VENOUS PLEXUS, PLEXUS VENOSUS OVARICUS, AND HAVING FREE CONNEXIONS WITH THE UTERINE VEINS, VENÆ UTERINÆ, AND THE UTEROVAGINAL VENOUS PLEXUS (see Appendix, note 231), PLEXUS UTEROVAGINALIS. THE INTERNAL PUDIC VEIN, AND ITS CONNEXIONS WITH THE VENOUS PLEXUS SITUATE BEHIND THE VAGINAL BULB OR BULB OF THE VESTIBULE.

The posterior half of the pelvis, together with the rectum and the posterior layer of the mesometrium, having been removed by a coronal section passing just behind the spine of the ischium, the uterovaginal plexus, with the veins leading from it, was laid bare. The ovaries were drawn well upwards, in order to spread out their mesentery; the left ovary was also drawn somewhat inwards, so as to display, after the outer layer of the mesovarium had been removed, the ovarian or pampiniform venous plexus, plexus (venosus) ovaricus. The common iliac vessels and the ureters were drawn outwards on each side. The internal pudic vessels were fully exposed by the removal of the obturator fascia where it covers them as they pass along the outer wall of the ischiorectal fossa.

The Veins of the Female Pelvis.

² Known also as the *infundibulopelvic* or *ovario-pelvic fold* or *ligament*.

³ See Appendix, note 230.

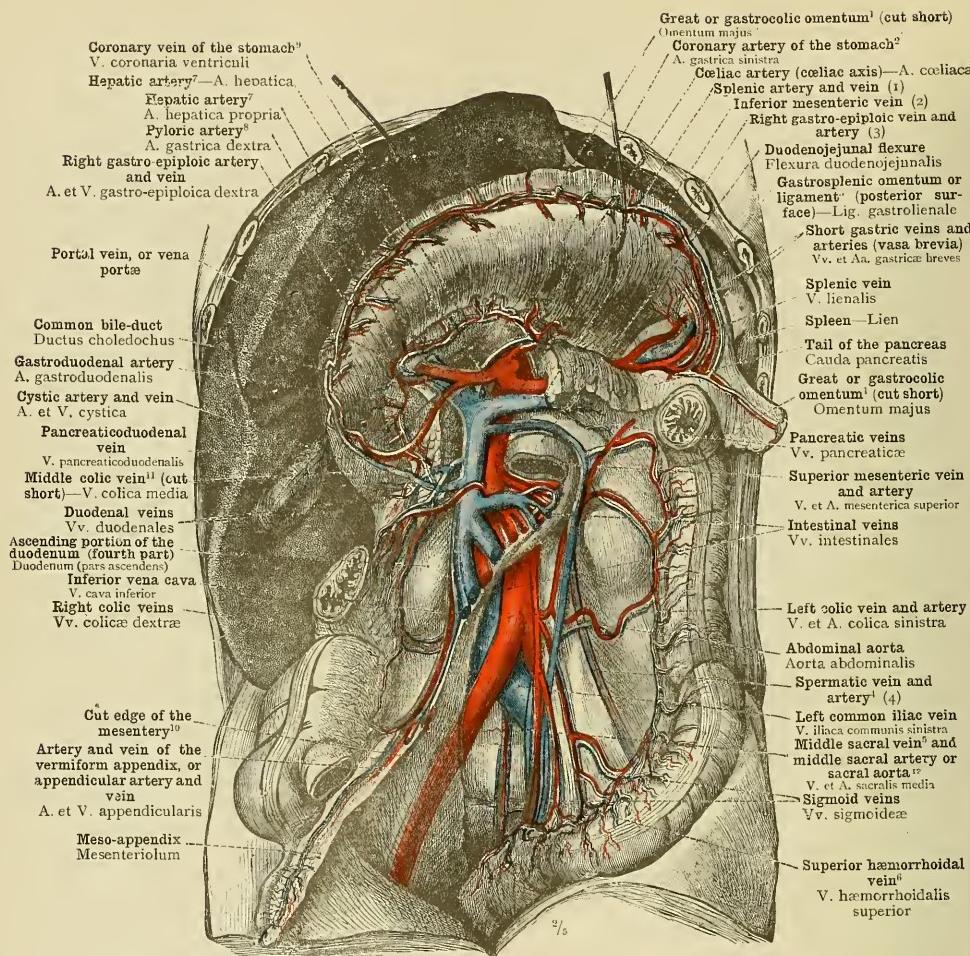
⁴ See Appendix, note 232.

⁵ See Appendix, note 163.

⁶ See Appendix to Part IV., note 82.

⁷ See note 3 to p. 672.

⁸ See Appendix, note 140.



(1) V. et A. lienalis

(2) V. mesenterica inferior

(3) V. et A. gastroepiploica dextra

(4) V. et A. spermatica interna

¹ Or epiploon.² Called by Macalister the *gastric artery*.³ The *gastric-splenic omentum* is connected below with the *great omentum*, and is often regarded as a part of it.—Tr.⁴ See Appendix, note 277.⁵ See Appendix, note 258.⁶ See Appendix, note 130.⁷ Called by Macalister the *superior rectal vein*.⁸ Called by Macalister the *gastric vein*.⁹ Called by Macalister the *superior pyloric artery*. See Appendix, note 131.¹⁰ I.e., the mesentery of the *jejunum* and *ileum*, which is always denoted in England by the term *mesentery* when used without qualification.—Tr.¹¹ Called by Macalister the *transverse colic vein*.¹² See Appendix, note 127.Great or gastrocolic omentum¹ (cut short)Omentum majus²Coronary artery of the stomach³

A. gastrica sinistra

Celiac artery (celiac axis)—A. celiaca

Splenic artery and vein (1)

Inferior mesenteric vein (2)

Right gastro-epiploic vein and artery (3)

Duodenojejunal flexure

Flexura duodenojejunalis

Gastroscopic omentum or ligament (posterior surface)—Lig. gastrolennale

Short gastric veins and arteries (vasa brevia)

Vv. et Aa. gastricae breves

Splenic vein

V. lienalis

Spleen—Lien

Tail of the pancreas

Cauda pancreatis

Great or gastrocolic omentum¹ (cut short)

Omentum majus

Pancreatic veins

Vv. pancreaticae

Superior mesenteric vein and artery

V. et A. mesenterica superior

Intestinal veins

Vv. intestinales

Left colic vein and artery

V. et A. colica sinistra

Abdominal aorta

Aorta abdominalis

Spermatic vein and artery⁴ (4)

Left common iliac vein

V. iliaca communis sinistra

Middle sacral vein⁵ and middle sacral artery orsacral aorta⁶

V. et A. sacralis media

Sigmoid veins

Vv. sigmoideæ

Superior haemorrhoidal vein⁷

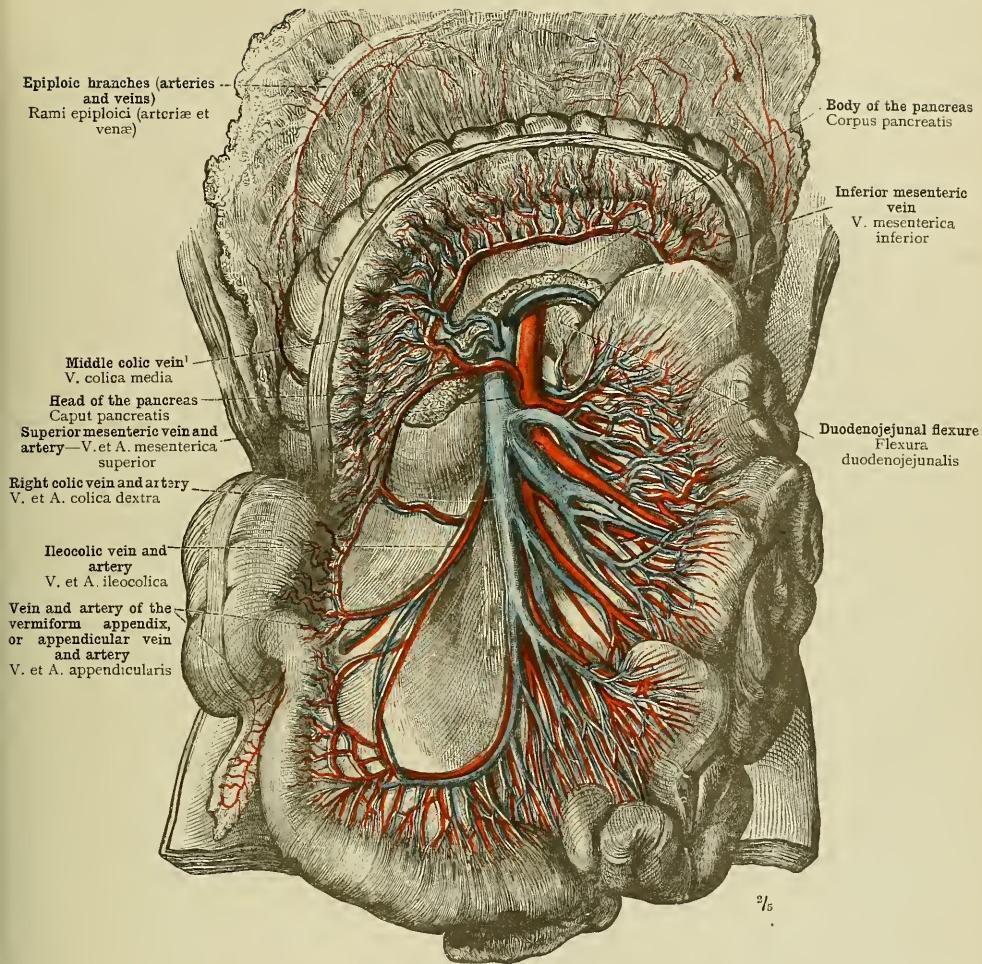
V. haemorrhoidalis

superior

FIG. 1075.—FORMATION OF THE PORTAL VEIN OR VENA PORTA BY THE CONFLUENCE OF THE SUPERIOR AND INFERIOR MESENTERIC VEINS, VENÆ MESENTERICÆ SUPERIOR ET INFERIOR, THE SPLENIC VEIN, VENA LIENALIS, AND THE CORONARY VEIN OF THE STOMACH OR GASTRIC VEIN, VENA CORONARIA VENTRICULI.

The great or gastrocolic omentum (or epiploon) was cut away immediately below the great curvature of the stomach, and the stomach itself was turned upwards. The jejunum and the ileum, as well as the transverse colon and the upper half of the ascending colon, were cut away, and the mesentery (see note 1 above) was cut away close to its root. The cæcum was drawn outwards, in order to stretch the meso-appendix and to display the artery and vein of the veriform appendix (appendicular artery and vein—arteria et vena appendicularis) between its layers. By the partial removal of the *pars recta*, the confluence of the superior mesenteric vein, vena mesenterica superior, and the splenic vein, vena lienalis, was displayed. The abdominal aorta, the inferior vena cava, the middle sacral artery or sacral aorta, and the middle sacral vein, were exposed by the removal of the parietal peritoneum covering these vessels.

The Portal System of Veins.



¹ Called by Macalister the *transverse colic vein*.

FIG. 1076.—THE TRIBUTARIES OF THE SUPERIOR MESENTERIC VEIN, VENA MESENTERICA SUPERIOR, AND THE TERMINAL PORTION OF THE INFERIOR MESENTERIC VEIN, VENA MESENTERICA INFERIOR. SEEN FROM BEFORE.

The jejunum (*intestinum jejunum*) and the ileum (*intestinum ileum*), with the mesentery (*see note* ¹⁰ to p. 678), were drawn to the left; the colon and the transverse mesocolon (*mesocolon transversum*), with the adjoining portion of the great or gastrocolic omentum (or *epiploum*), were drawn upwards.

V. mesenterica superior—The superior mesenteric vein.

VENÆ COLLI ET CAPITIS
THE VEINS OF THE HEAD AND
NECK

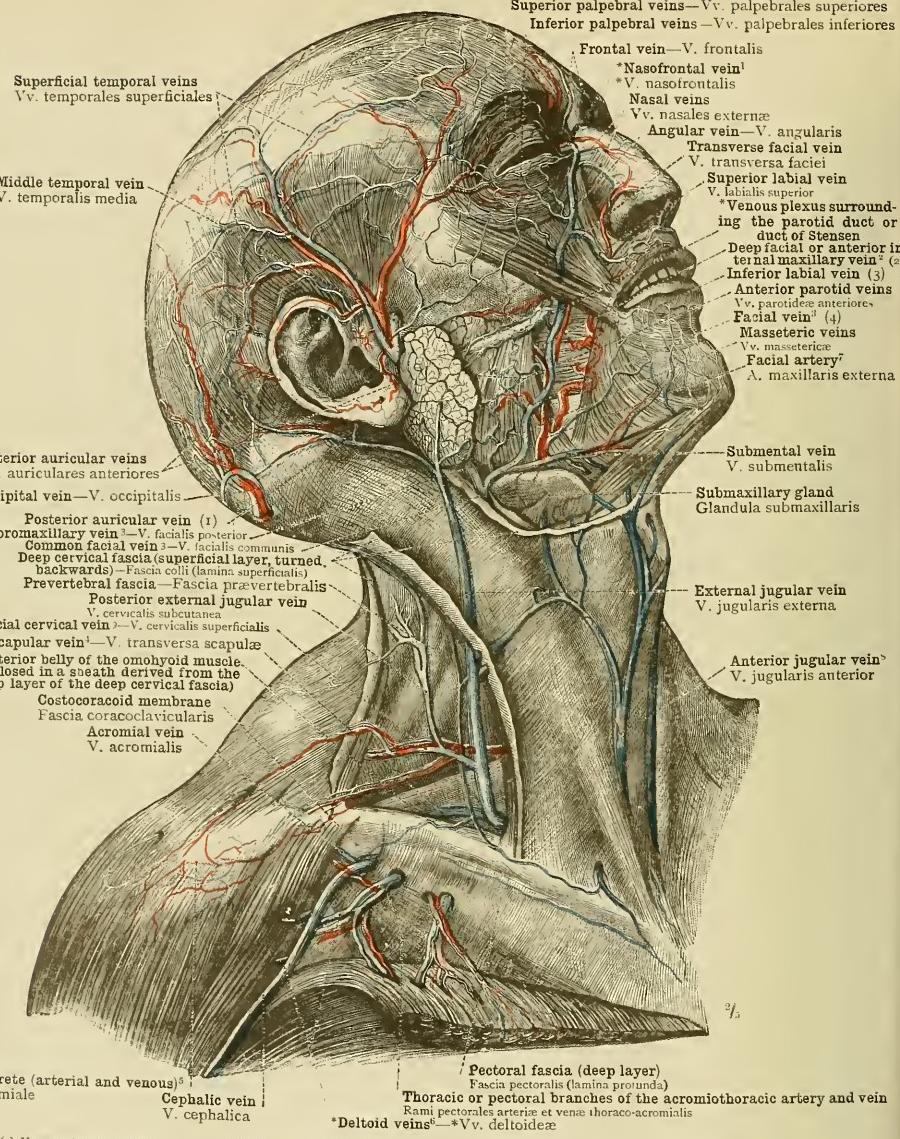
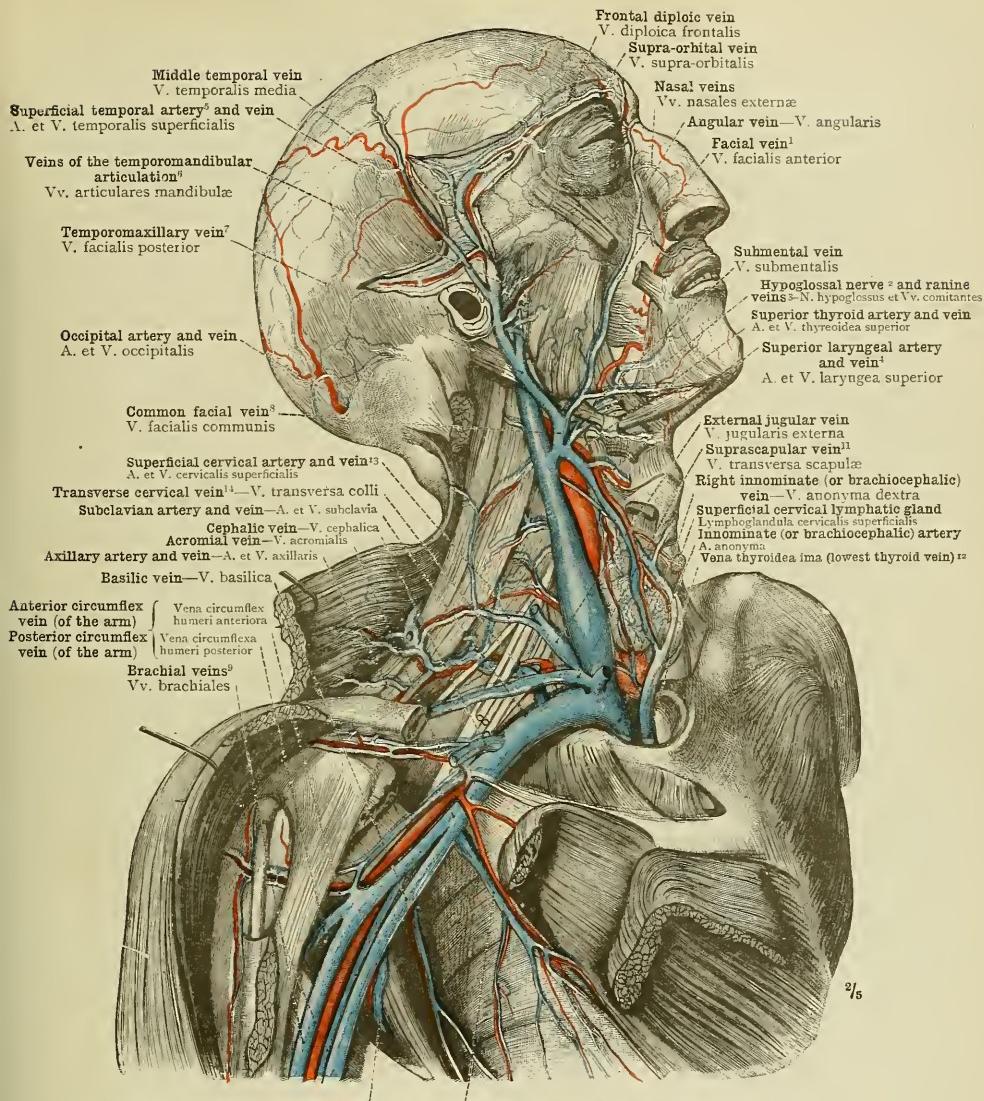


FIG. 1077.—THE SUPERFICIAL VEINS OF THE HEAD AND NECK: THE ORIGIN OF THE FACIAL (OR ANTERIOR FACIAL) VEIN, VENA FACIALIS ANTERIOR, AND THE TEMPOROMAXILLARY (OR POSTERIOR FACIAL) VEIN, VENA CERVICALIS SUBCUTANEA.



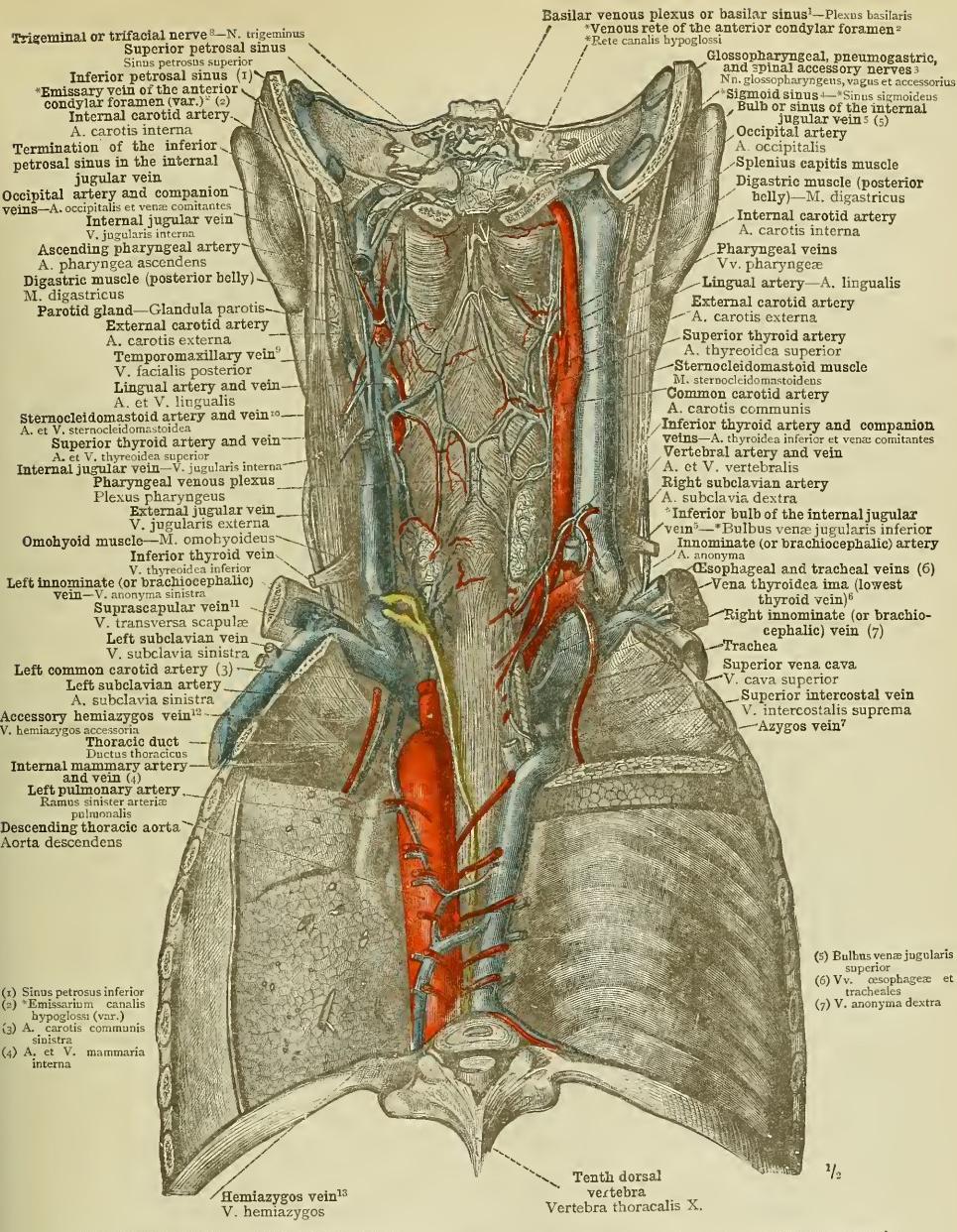
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Dorsal branch of the subscapular vein¹⁰
V. circumflexa scapulae

Long thoracic artery and vein¹⁵
A. et V. thoracalis lateralis

- ¹ Sometimes distinguished as the *anterior facial vein*. See Appendix, note 283.
² Twelfth cranial nerve in Spemann's enumeration, ninth in that of Willis; sometimes also known as the *lingual motor nerve*.
³ See Appendix, note 286.
⁴ Or laryngeal branches of the *superior thyroid artery* and *vein*, respectively.
⁵ See Appendix, note 286.
⁶ See Appendix, note 287.
⁷ Sometimes called the *posterior facial vein*. See Appendix, note 283.
⁸ See Appendix, note 283.
⁹ Or *venae comites* of the *brachial artery*.
¹⁰ Often called the *dorsalis scapularis vein*.
¹¹ Known also as the *transverse scapular* or *transverse humeral vein*.
¹² Companion to the *thyroidea ima artery*. See note 1 to p. 590.
¹³ See Appendix, note 283.
¹⁴ See Appendix, note 286.
¹⁵ Known also as the *external mammary artery and vein*.

FIG. 1078.—THE FACIAL VEIN (see note 1 above), VENA FACIALIS ANTERIOR; THE FORMATION OF THE TEMPOROMAXILLARY VEIN (see note 7 above), VENA FACIALIS POSTERIOR; THE INTERNAL JUGULAR VEIN, VENA JUGULARIS INTERNA; THE AXILLARY VEIN, VENA AXILLARIS. SEEN FROM THE RIGHT SIDE AND BEFORE.



¹ See Appendix, note 290. ² See Appendix, note 294.

³ Or ninth, tenth, and eleventh cranial nerves in Sommering's enumeration; together forming the eighth cranial nerve in Willis's enumeration.

⁴ The right side of the pharynx is the proper location of the lateral sinus as described by most English anatomists. See Appendix, note 264.

⁵ See Appendix, note 12.

⁶ Companion to the *thyroidea ima* artery. See note 1 to p. 590.

⁷ Known also as the *right or large azygos vein*.

⁸ Or fifth cranial nerve.

⁹ Sometimes called the *posterior facial vein*. See Appendix, note 293.

¹⁰ See Appendix, note 160.

¹¹ Known also as the *transverse scapular or transverse humeral vein*.

¹² Known also as the *left upper azygos vein*.

¹³ Known also as the *left lower or small azygos vein*.

¹⁴ See Appendix, note 295.

FIG. 1080.—THE VEINS OF THE PHARYNX, THE OESOPHAGUS, AND THE TRACHEA; THE BASILAR VENOUS PLEXUS OR BASILAR SINUS (see Appendix, note 290), PLEXUS BASILARIS; THE AZYGOS, HEMIAZYGOS, AND ACCESSORY HEMIAZYGOS VEINS (see notes 7, 12, and 13 above); THE THORACIC DUCT, DUCTUS THORACICUS. SEEN FROM BEHIND.

The Pharyngeal and Basilar Venous Plexuses.—The Azygous Veins.

(5) Bulbus vena jugularis superior

(6) Vv. oesophageæ et tracheæ

(7) V. anonyma dextra

Internal maxillary artery¹—A. maxillaris interna

Ophthalmic artery—A. ophthalmica

Cut surface of the external pterygoid plate

Circumflexus or tensor palati muscle—M. tensor vel palatinus

Internal carotid artery—A. carotis interna

Cavernous sinus—Sinus cavernosus

Internal carotid artery—A. carotis interna

Tympanic cavity, or tympanum (promontory)

Cavum tympani (promontorium)

Obliquus capitis superior muscle

*Sigmoid sinus—*Sinus sigmoides

Occipital artery and vein

A. et V. occipitalis

Superior ophthalmic vein—V. ophthalmica superior

Inferior ophthalmic vein—V. ophthalmica inferior

Lachrymal vein—V. lacrimalis

Posterior ciliary veins—Vv. ciliares posteriores

*Nasofrontal vein¹—*V. nasofrontalis

Stylopharyngeus muscle

Styloglossus muscle

Sublingual artery and vein

A. et V. sublingualis

Geniohyoid muscle

M. geniohyoideus

Ranine artery and veins²

A. et V. profunda linguae

Hyoglossus muscle

Mylohyoid muscle

M. mylohyoideus

Superior thyroid vein

V. thyreidea superior

Posterior tubercle of the transverse process of the sixth cervical vertebra

*Inferior bulb of the internal jugular vein³

Bulbus vena jugularis inferior

Eighth cervical nerve

N. cervicalis VIII.

Right subclavian artery

A. subclavia dextra

} (cut short)

Right subclavian vein

V. subclavia dextra

Right innominate (or brachiocephalic) vein

V. anonyma dextra

Superior vena cava

V. cava superior

2/3

(1) A. pharygea ascendens

(2) A. et V. cervicalis profunda

¹ See Appendix, note 262.

² See Appendix, note 286.

³ See Appendix, note 121.

⁴ See Appendix, note 106.

⁵ The "sigmoid sinus" is the proximal portion of the lateral sinus as described by most English anatomists. See Appendix, note 264.

⁶ See Appendix, note 253.

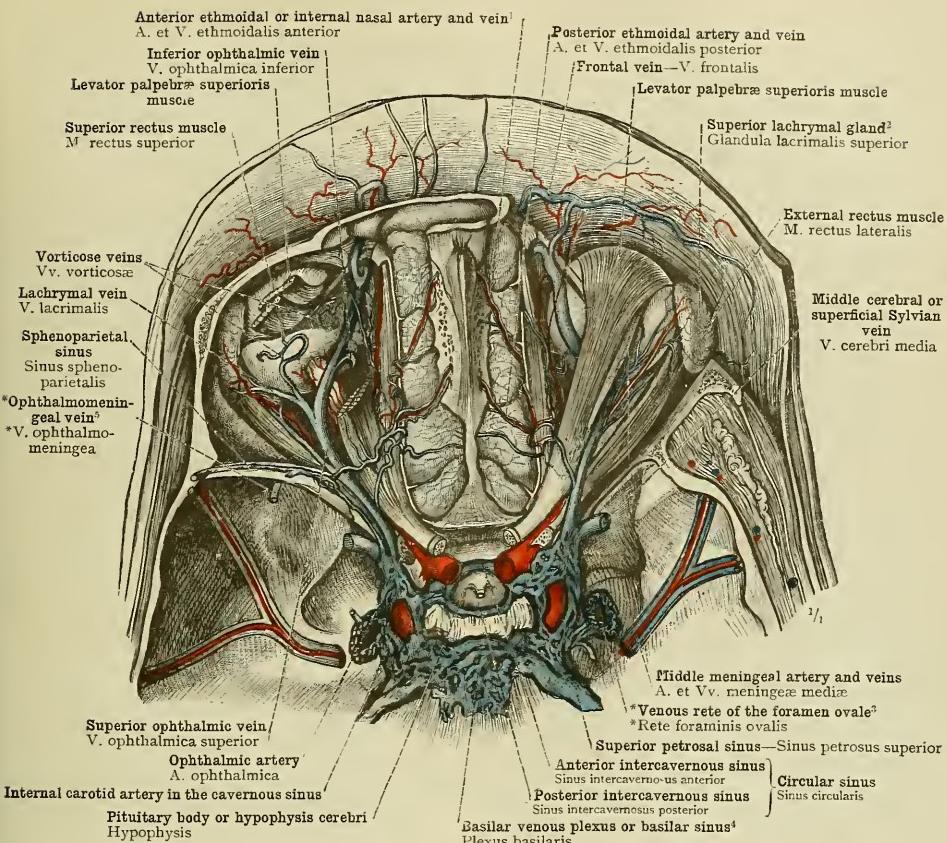
⁷ See Appendix, note 165.

⁸ The deep cervical vein is known also as the posterior vertebral vein.

⁹ See note 7 to p. 689.

FIG. 1081.—THE CAVERNOUS SINUS AND THE VEINS OF THE ORBIT; THE DEEP VISCERAL VEINS OF THE HEAD AND NECK; THE DEEP CERVICAL OR POSTERIOR VERTEBRAL VEIN, VENA CERVICALIS PROFUNDA, AND THE VERTEBRAL VEIN, VENA VERTEBRALIS. SEEN FROM THE RIGHT SIDE.

The Deep Veins of the Head and Neck.



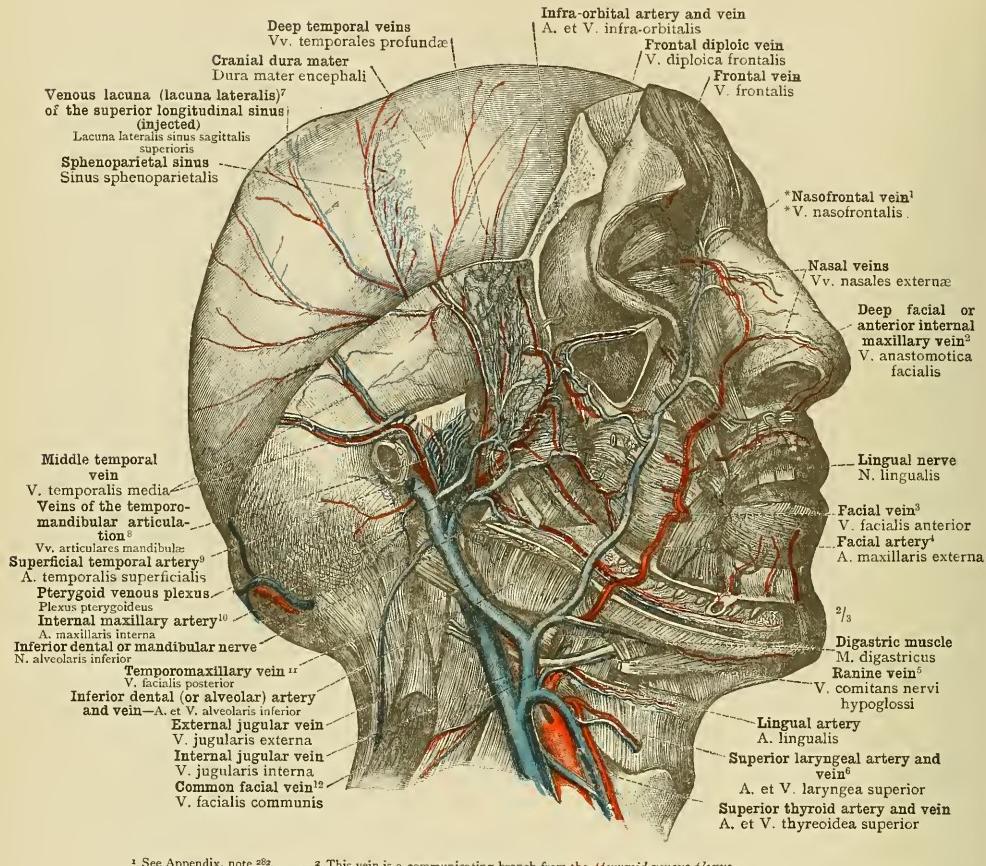
¹ See Appendix, note 184. ² See Appendix, note 179. ³ See Appendix, note 292.

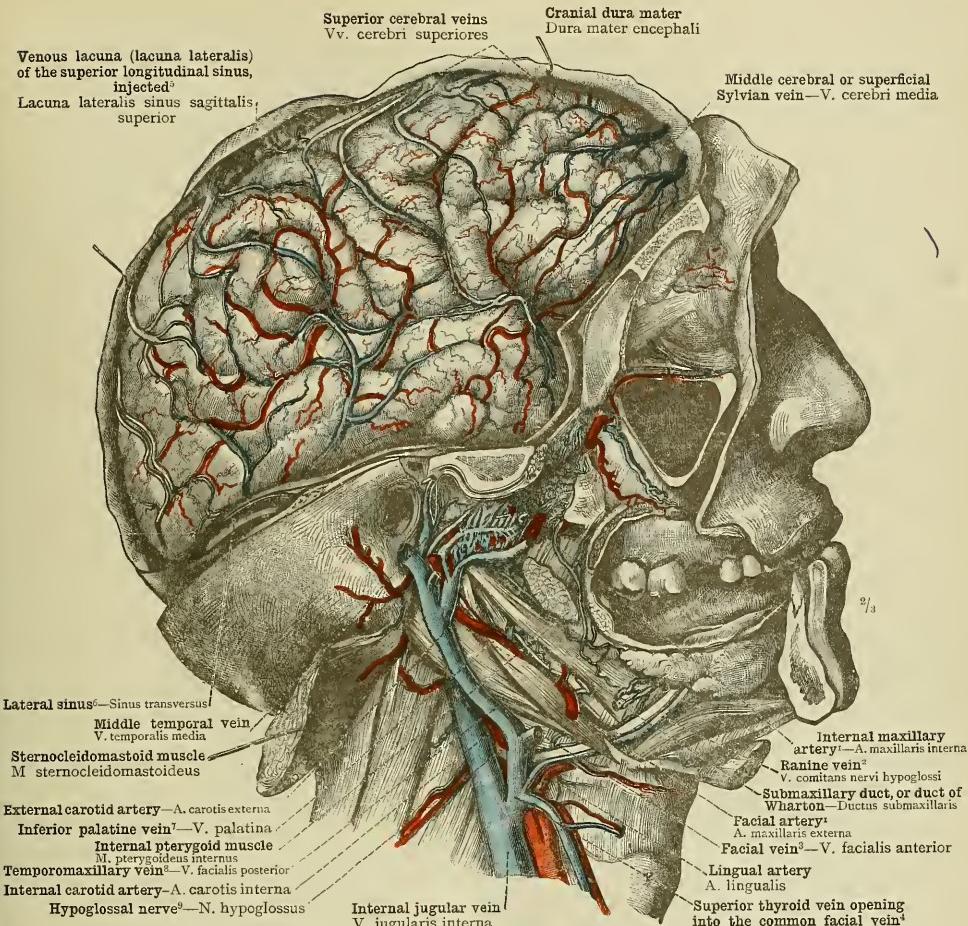
⁴ Sometimes also known as the *transverse sinus*. See Appendix, note 290.
5 A communicating branch between the *superior ophthalmic vein* and the *middle cerebral or superficial Sylvian vein*, which in this specimen, however, opens posteriorly into the *sphenoparietal sinus*.

FIG. 1082.—THE VEINS OF THE ORBIT, SEEN FROM ABOVE: THE SUPERIOR OPHTHALMIC VEIN, VENA OPHTHALMICA SUPERIOR, ITS CONFLUENCE WITH THE INFERIOR OPHTHALMIC VEIN, VENA OPHTHALMICA INFERIOR, AND ITS TERMINATION IN THE CAVERNOUS SINUS, SINUS CAVERNOUS; THE LACHRYMAL VEIN, VENA LACRIMALIS; THE VORTICOSE VEINS, VENE VORTICOSÆ; MUSCULAR VEINS, VENÆ MUSCULARES; THE *OPHTHALMO-MENINGEAL VEIN, *VENA OPHTHALMOMENINGEA, OPENING POSTERIORLY, IN THIS SPECIMEN, INTO THE SPHENO-PARIETAL SINUS, SINUS SPHENOPARIETALIS. THE CAVERNOUS SINUS, SINUS CAVERNOUS, AND THE ANTERIOR AND POSTERIOR INTERCAVERNOUS SINUSES, SINUS CAVERNOUS ANTERIOR ET POSTERIOR, THE RIGHT AND LEFT CAVERNOUS SINUSES AND THE ANTERIOR AND POSTERIOR INTERCAVERNOUS SINUSES, COMBINING TO MAKE UP THE CIRCULAR SINUS, SINUS CIRCULARIS. THE BASILAR VENOUS PLEXUS OR BASILAR SINUS (see note ⁴ above), PLEXUS BASILARIS. THE MIDDLE MENINGEAL ARTERY AND VEINS, ARTERIA ET VENÆ MENINGEÆ MEDIAE.

The left orbit was opened, by the removal of its roof, the right by the removal of its roof and the greater part of its outer wall. On the right side, the muscles of the orbit were left intact; on the left side, the levator palpebrae superioris and superior rectus muscle were partly removed, in order to lay bare the superior ophthalmic vein throughout its whole course. On the left side, in the dura mater covering the inferior surface of the small wing of the sphenoid bone (this wing having first been removed), the sphenoparietal sinus was exposed, and was traced to its termination in the cavernous sinus.

The Veins of the Orbit.—The Cavernous and Circular Sinuses.

¹ See Appendix, note 282.² This vein is a communicating branch from the pterygoid venous plexus.³ Sometimes distinguished as the anterior facial vein. See Appendix, note 283.⁴ See Appendix, note 166.⁵ See Appendix, note 286.⁶ Or laryngeal branch of the superior thyroid artery and vein, respectively.⁷ See Appendix, note 283.⁸ See Appendix, note 287.⁹ See Appendix, note 168.¹⁰ See Appendix, note 166.¹¹ See Appendix, note 283.¹² Sometimes called the posterior facial vein. See Appendix, note 283.¹³ See Appendix, note 283.¹⁴ See Appendix, note 283.¹⁵ See Appendix, note 283.¹⁶ See Appendix, note 283.¹⁷ See Appendix, note 283.¹⁸ See Appendix, note 283.¹⁹ See Appendix, note 283.²⁰ See Appendix, note 283.²¹ See Appendix, note 283.²² See Appendix, note 283.²³ See Appendix, note 283.²⁴ See Appendix, note 283.²⁵ See Appendix, note 283.²⁶ See Appendix, note 283.²⁷ See Appendix, note 283.²⁸ See Appendix, note 283.²⁹ See Appendix, note 283.³⁰ See Appendix, note 283.³¹ See Appendix, note 283.³² See Appendix, note 283.³³ See Appendix, note 283.³⁴ See Appendix, note 283.³⁵ See Appendix, note 283.³⁶ See Appendix, note 283.³⁷ See Appendix, note 283.³⁸ See Appendix, note 283.³⁹ See Appendix, note 283.⁴⁰ See Appendix, note 283.⁴¹ See Appendix, note 283.⁴² See Appendix, note 283.⁴³ See Appendix, note 283.⁴⁴ See Appendix, note 283.⁴⁵ See Appendix, note 283.⁴⁶ See Appendix, note 283.⁴⁷ See Appendix, note 283.⁴⁸ See Appendix, note 283.⁴⁹ See Appendix, note 283.⁵⁰ See 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¹ See Appendix, note 266. ² See Appendix, note 286. ³ Sometimes distinguished as the *anterior facial vein*. See Appendix, note 283.

⁴ See Appendix, note 294.

⁵ See Appendix, note 293.

⁶ See Appendix, note 264.

⁷ See Appendix, note 295.

⁸ Sometimes called the *posterior facial vein*. See Appendix, note 283.

⁹ Or *twelfth cranial nerve*, in Soemmerring's enumeration; *ninth cranial nerve*, in that of Willis. Sometimes also called the *lingual motor nerve*.

FIG. 1084.—THE VEINS OF THE CONVEXITY OF THE CEREBRAL HEMISPHERES, SUPERIOR CEREBRAL VEINS, VENAE CEREBRI SUPERIORES, AND THEIR TERMINATION IN THE SUPERIOR LONGITUDINAL SINUS; THE MIDDLE CEREBRAL OR SUPERFICIAL SYLVIAN VEIN, VENA CEREBRI MEDIA. IN THIS SPECIMEN, THE INTERNAL MAXILLARY ARTERY RUNS ON THE OUTER INSTEAD OF ON THE INNER SURFACE OF THE EXTERNAL PTERYGOID MUSCLE, SURROUNDED BY THE DEEPER PORTION OF THE PTERYGOID VENOUS PLEXUS, PLEXUS PTERGOIDEUS, AND THIS LATTER, ON ACCOUNT OF THE ABNORMAL COURSE OF THE ARTERY, IS MORE LARGELY DEVELOPED THAN USUAL. SEEN FROM THE RIGHT SIDE.

The skull-cap (calvaria) and the cranial dura mater having been completely removed, the veins on the convexity of the right cerebral hemisphere were exposed, and were traced to their termination in the venous lacuna (lacuna lateralis) of the superior longitudinal sinus (see Appendix, note 293). The right half of the mandible was removed, the interarticular disc being, however, left behind. A portion of the upper head only of the external pterygoid muscle was preserved, as also was the cranial extremity of the internal pterygoid muscle.

The Pterygoid Venous Plexus, Plexus Pterygoideus.—The Veins of the Brain.

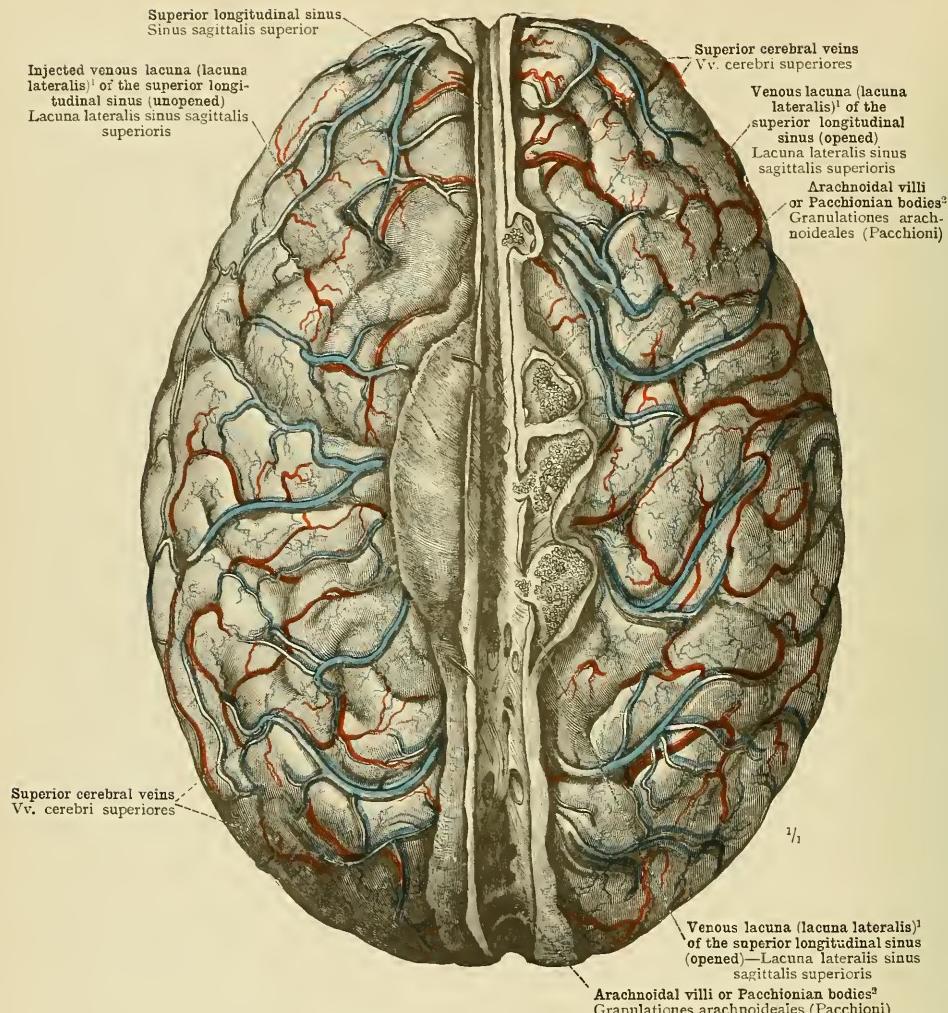


FIG. 1085.—THE SUPERIOR CEREBRAL VEINS, VENÆ CEREBRI SUPERIORES. THE SUPERIOR LONGITUDINAL SINUS, SINUS SAGITTALIS SUPERIOR; ITS VENOUS LACUNÆ (LACUNÆ LATERALES—see Appendix, note 223), AND THE RELATIONS OF THE LATTER TO THE SUPERIOR CEREBRAL VEINS AND TO THE ARACHNOIDAL VILLI OR PACCHIONIAN BODIES (GRANULATIONES ARACHNOIDEALES PACCHIONI—see Appendix, note 226). SEEN FROM ABOVE.

The cranial dura mater was removed, except in the immediate vicinity of the superior longitudinal sinus (*sinus sagittalis superior*), which was opened. On the left side the injected venous lacunæ (*lacunæ laterales*) of this sinus are seen unopened; on the right side these lacunæ were opened from above, and the arachnoidal villi or Pacchionian bodies proliferating in their interior were thus displayed.

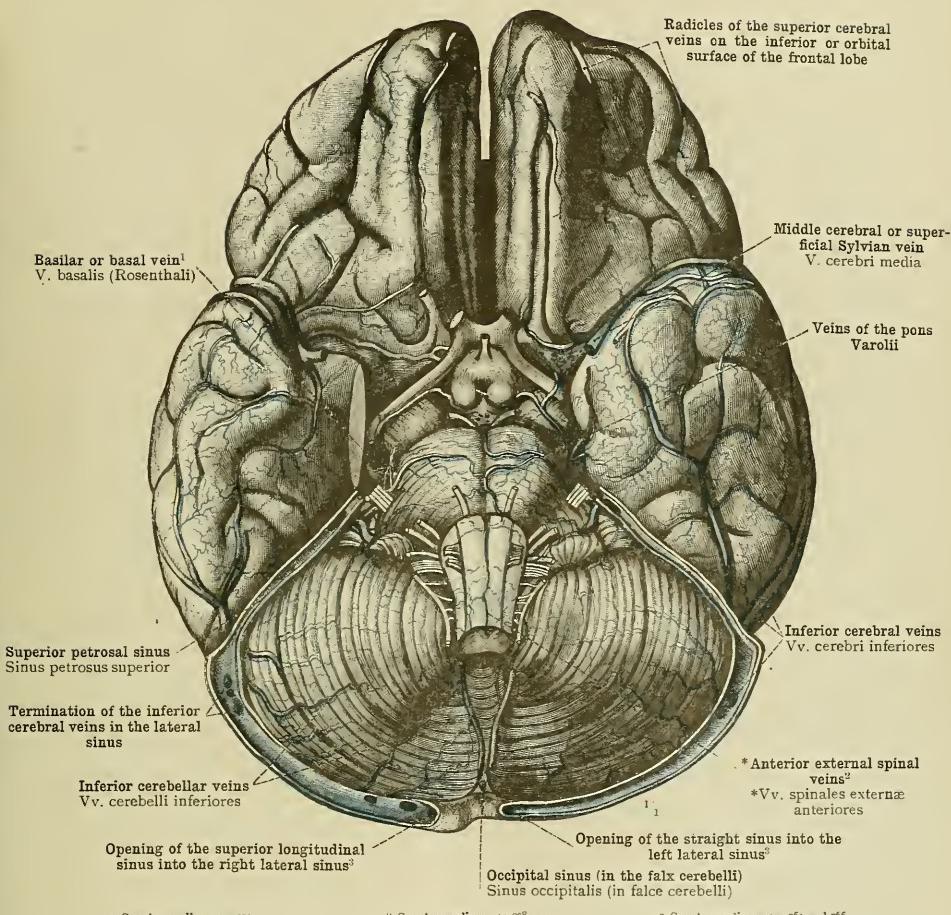
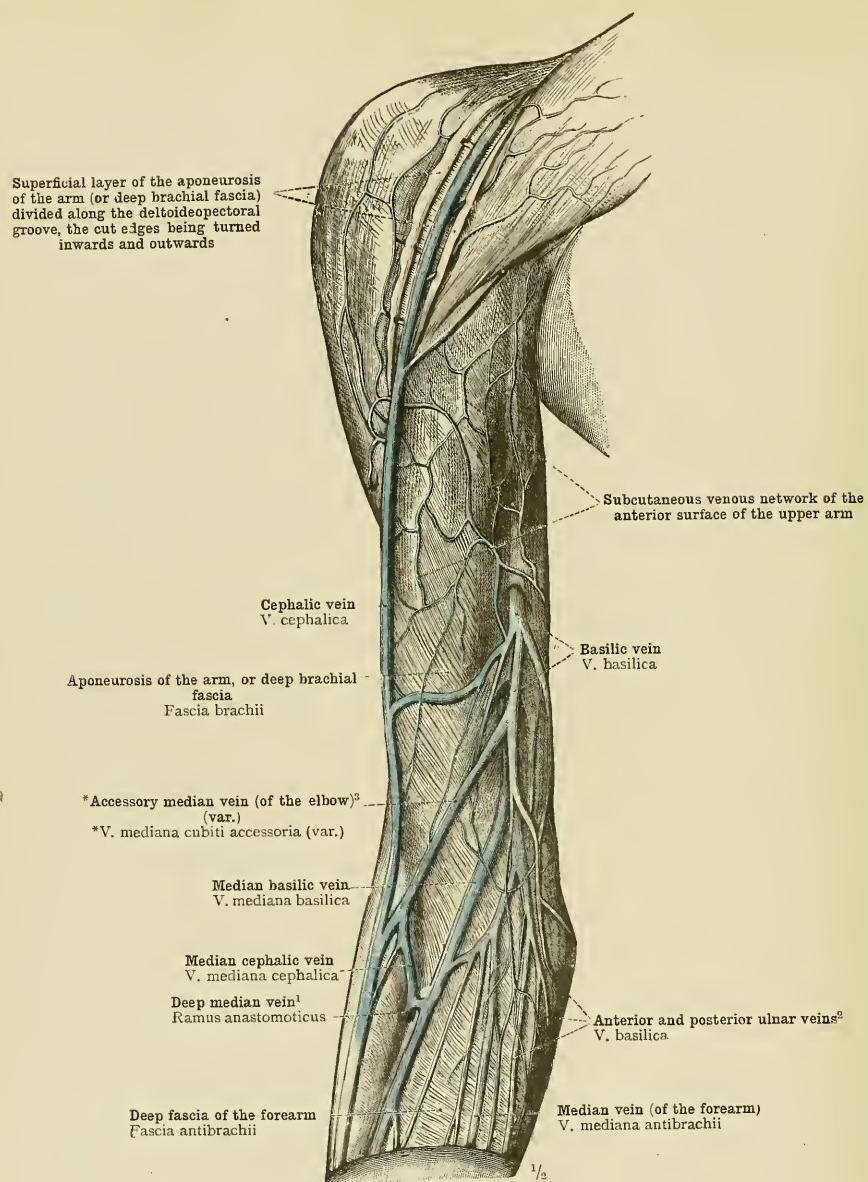
¹ See Appendix, note 227.² See Appendix, note 228.³ See Appendix, notes 264 and 266.

FIG. 1086.—THE VEINS OF THE BASE OF THE BRAIN: THE MIDDLE CEREBRAL OR SUPERFICIAL SYLVIAN VEIN, VENA CEREBRI MEDIA; THE INFERIOR CEREBRAL VEINS, VENÆ CEREBRI INFERIORES; THE RADICLES AND THE TRUNK OF THE BASILAR OR BASAL VEIN, VENA BASALIS ROSENTHALI (see Appendix, note 227); THE VEINS OF THE PONS VAROLII, AND THE INFERIOR CEREBELLAR VEINS, VENÆ CEREBELLI INFERIORES.

The brain was removed from the cranial cavity, together with the tentorium cerebelli, so that along the attached borders of the tentorium the lateral sinuses and the inferior petrosal sinuses were opened from below. The frontal lobes were drawn a little apart, in order to display the veins on their internal or mesial surfaces. The right temporal lobe was drawn away from the cerebral peduncle, and a sufficient portion of this lobe was removed to expose the trunk of the basilar or basal vein (vena basalis Rosenthali).

Veins of the Brain.

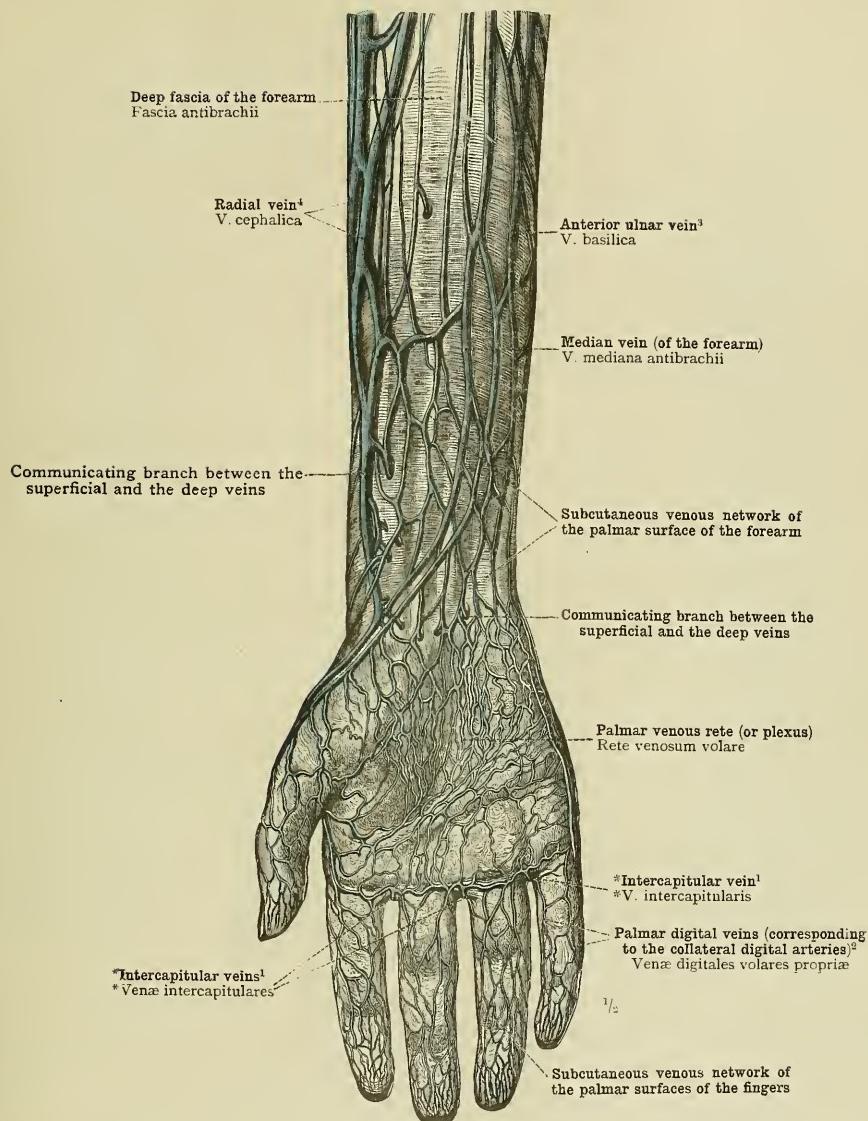
VENÆ EXTREMITATUM
SUPERIORUM ET INFERIORUM
THE VEINS OF THE UPPER AND
LOWER LIMBS



¹ See Appendix, note 299.
² Called by Macalister *anterior and posterior superficial ulnar veins*. See Appendix, note 346.
³ See Appendix, note 300.

FIG. 1087.—THE SUBCUTANEOUS VEINS OF THE FRONT OF THE SHOULDER, THE FRONT OF THE ARM, AND THE FLEXURE OF THE ELBOW.

Cutaneous Veins of the Arm.

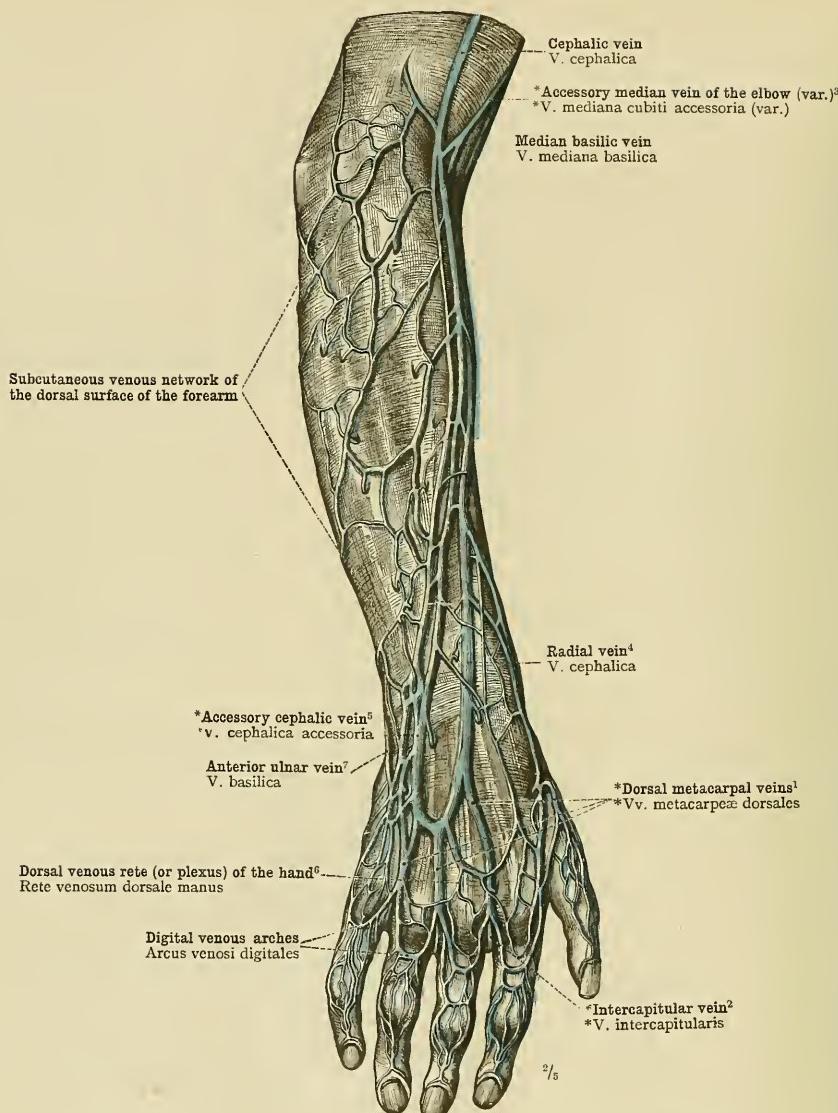


¹ See Appendix, note 390.
² See Appendix, note 391.
³ Called by Macalister the *anterior superficial ulnar vein*. See Appendix, note 306.

⁴ See Appendix, note 305.

FIG. 1088.—THE SUBCUTANEOUS VEINS OF THE PALMAR SURFACE OF THE FOREARM AND HAND.

Cutaneous Veins of the Arm.



Dorsal venous rete (or plexus) of the hand⁶.
Rete venosum dorsale manus

Digital venous arches
Arcus venosi digitales

Intercapitular vein²
*V. intercapitularis

2/5

¹ See Appendix, note 372.

² See Appendix, note 305.

³ Called by Macalister the *anterior superficial ulnar vein*. See Appendix, note 306.

⁴ See Appendix, note 309.

⁵ See Appendix, note 303.

⁶ See Appendix, note 308.

⁷ See Appendix, note 304.

FIG. 1089.—THE SUBCUTANEOUS VEINS OF THE DORSAL SURFACE OF THE FOREARM AND HAND.

Cutaneous Veins of the Arm.

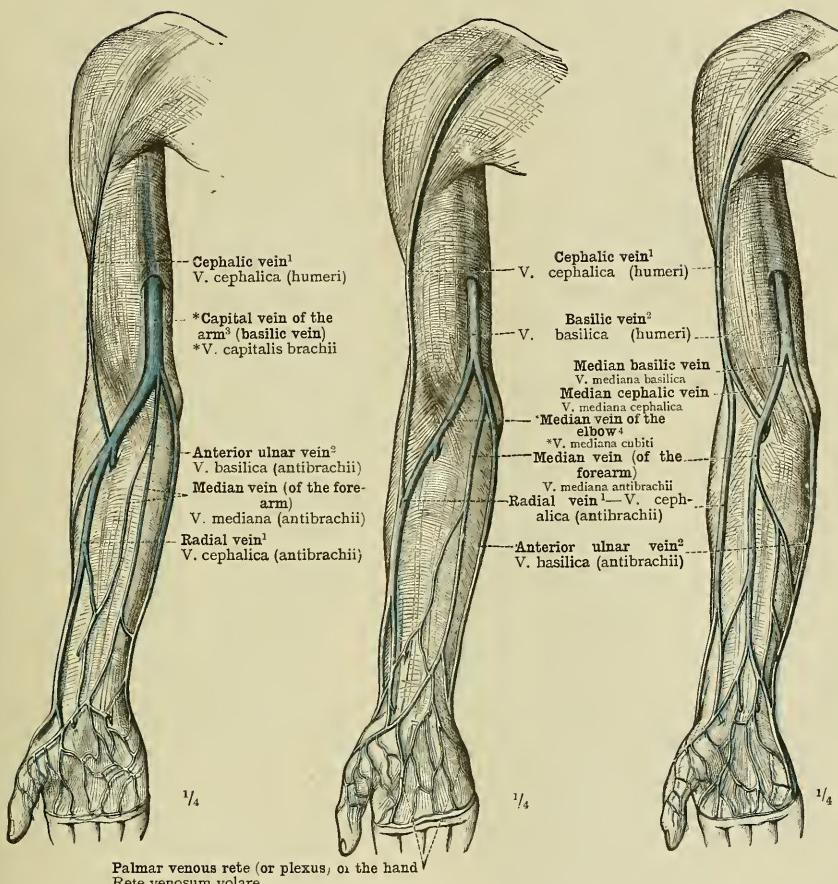
¹ See Appendix, note 205.² See Appendix, note 305.³ See Appendix, note 307.⁴ See Appendix, note 308.

FIG. 1090.—THE COMMONER VARIETIES OF THE SUBCUTANEOUS VEINS OF THE ARM (see Appendix, notes 207 and 308). THE *CAPITAL VEIN OF THE ARM, *VENA CAPITALIS BRACHII (K. von Bardeleben), AND ITS COLLATERAL CHANNELS.

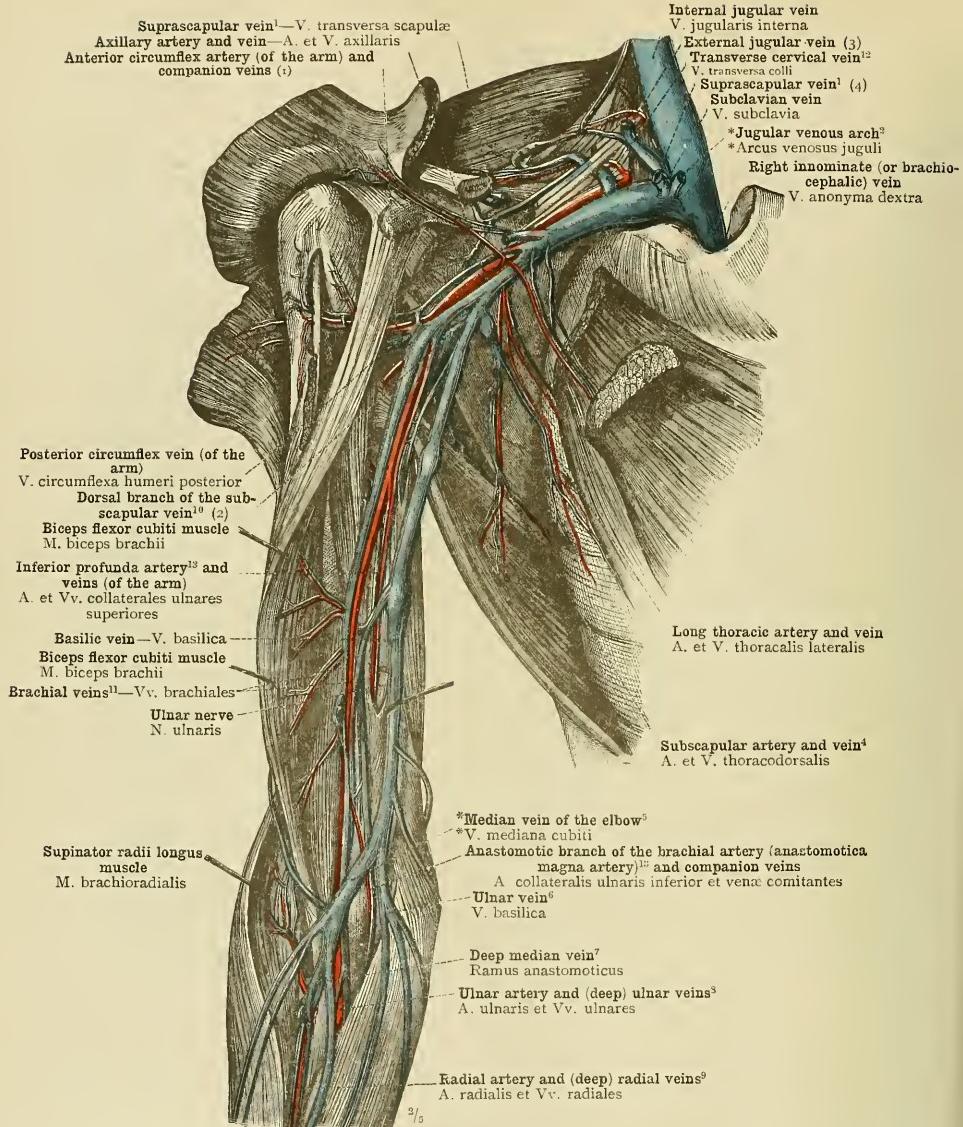


FIG. 1091.—THE DEEP VEINS AND ARTERIES OF THE (*GREATER) SUPRACLAVICULAR FOSSA (see Appendix, note ²⁸⁹), *FOSSA SUPRACLAVICULARIS MAJOR, OF THE AXILLA, AND OF THE FRONT OF THE UPPER ARM; THE CONNEXION BETWEEN THE SUPERFICIAL AND THE DEEP VEINS OF THE FLEXURE OF THE ELBOW.

Deep Veins of the Axilla and the Upper Arm.

¹ A. circumflexa humeri anterior et vena comitantes

² Known also as the *transversa scapularis* or *transverse humeral vein*.

³ Known also as the *external mammary artery and vein*.

⁴ See Appendix, note ³⁰³.

⁵ See Appendix, note ³¹¹.

⁶ Or *venae comitantes* of the *ulnar artery*.

⁷ Often called the *dorsalis scapulae vein*.

⁸ See Appendix, note ²⁰².

⁹ See Appendix, note ²³².

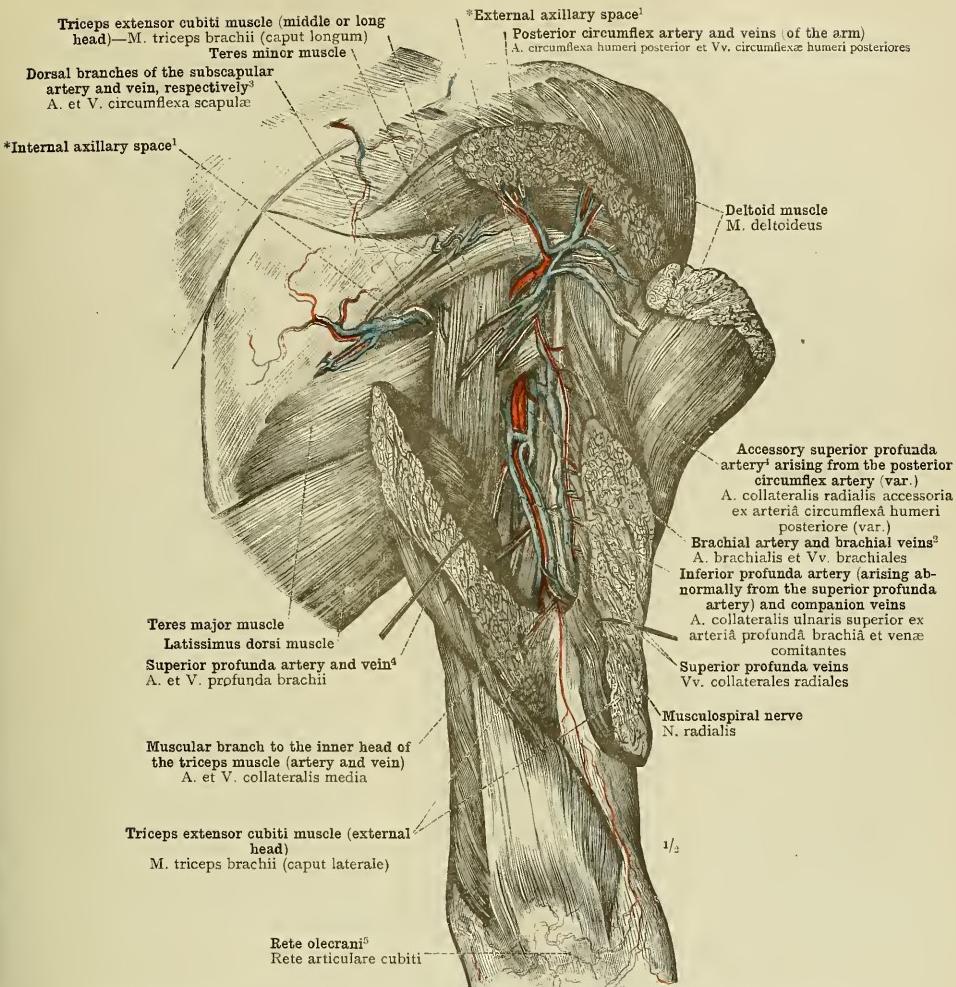
¹⁰ See Appendix, note ³⁰³.

¹¹ See Appendix, note ³¹¹.

¹² Or *venae comitantes* of the *radial artery*.

¹³ Or *venae comitantes* of the *brachial artery*.

¹⁴ See Appendix, note ²⁰⁹.



³ Known also as the *dorsalis scapulae artery and vein*, respectively.

⁴ See Appendix, note 299.

⁵ See Appendix, note 312.

FIG. 1092.—THE DEEP VEINS AND ARTERIES OF THE DORSAL SURFACE OF THE RIGHT SHOULDER AND UPPER ARM; SEEN FROM BEHIND.

A horizontal incision was made through the hinder part of the deltoid muscle somewhat above its vertical extent, the margins of the incision were turned upwards and downwards, and the teres minor muscle was drawn a little upwards, in order to expose the vessels passing through the *axillary spaces (see note ¹ above). The external head of the triceps extensor cubiti muscle was divided by a longitudinal incision, and the segments were drawn apart, in order to expose the ramification of the superior profunda vessels.

Deep Veins of the Shoulder and the Upper Arm.

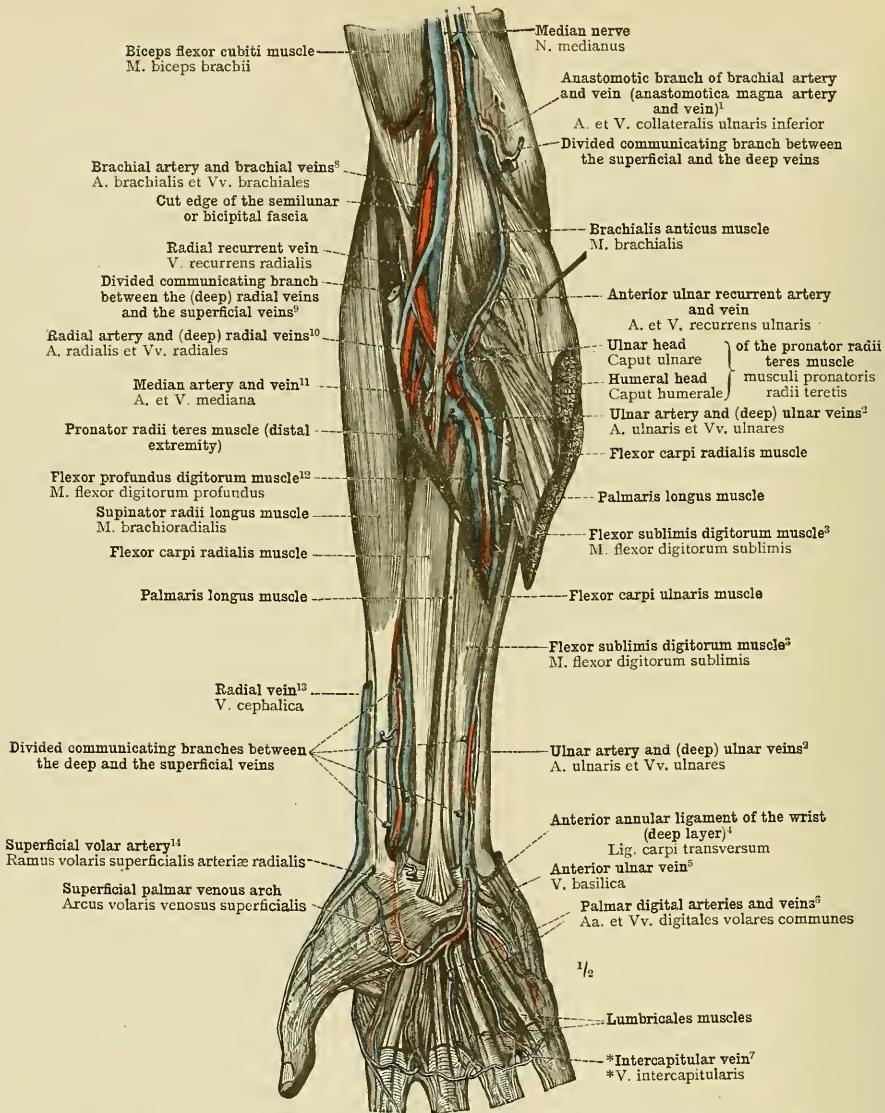
¹ See Appendix, note 209.² See Appendix, note 214.³ See Appendix, notes 213 and 301.⁴ Or *venae comites* of the brachial artery.⁵ Or *venae comites* of the radial artery.⁶ Or *flexor perforans* muscle.⁷ Often known in England by the Latin name of *superficialis vena volvata*.² Or *vena comites of the ulnar artery*.⁵ Or *anterior superficial ulnar vein*, according to Macalister.⁶ See Appendix, note 379.⁷ This probably represents the *deep median vein* of English anatomists.—TR.¹¹ Called by Macalister *comes nervi mediani artery and vein*.¹³ Or *superficial radial vein*, according to Macalister. See Appendix, note 378.³ Or *flexor perforatus* muscle.⁴ See Appendix, note 396.^{*Intercapitular vein⁷}^{*V. intercapitularis}

FIG. 1093.—THE DEEP VEINS AND ARTERIES OF THE FLEXURE OF THE ELBOW AND OF THE PALMAR SURFACE OF THE FOREARM; THE SUPERFICIAL PALMAR ARTERIAL AND VENOUS ARCHES.

Deep Veins of the Forearm and Hand.

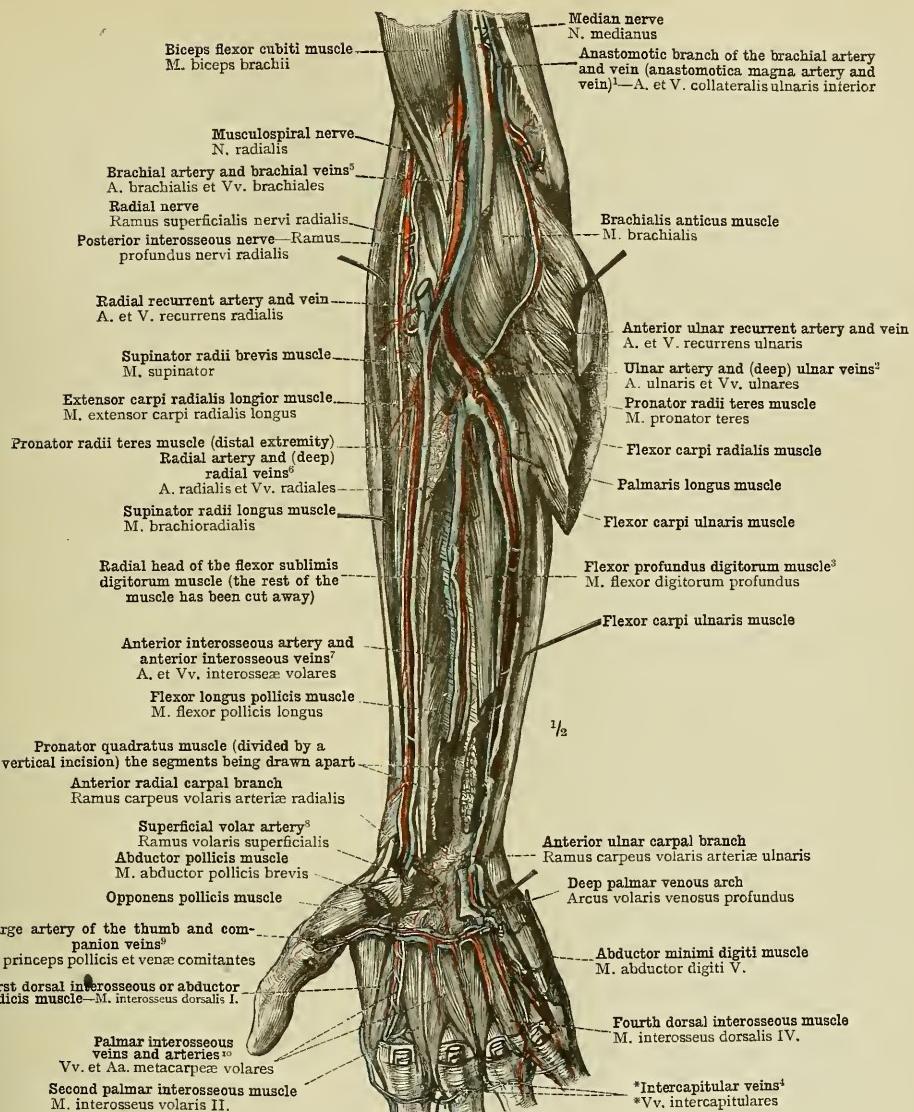
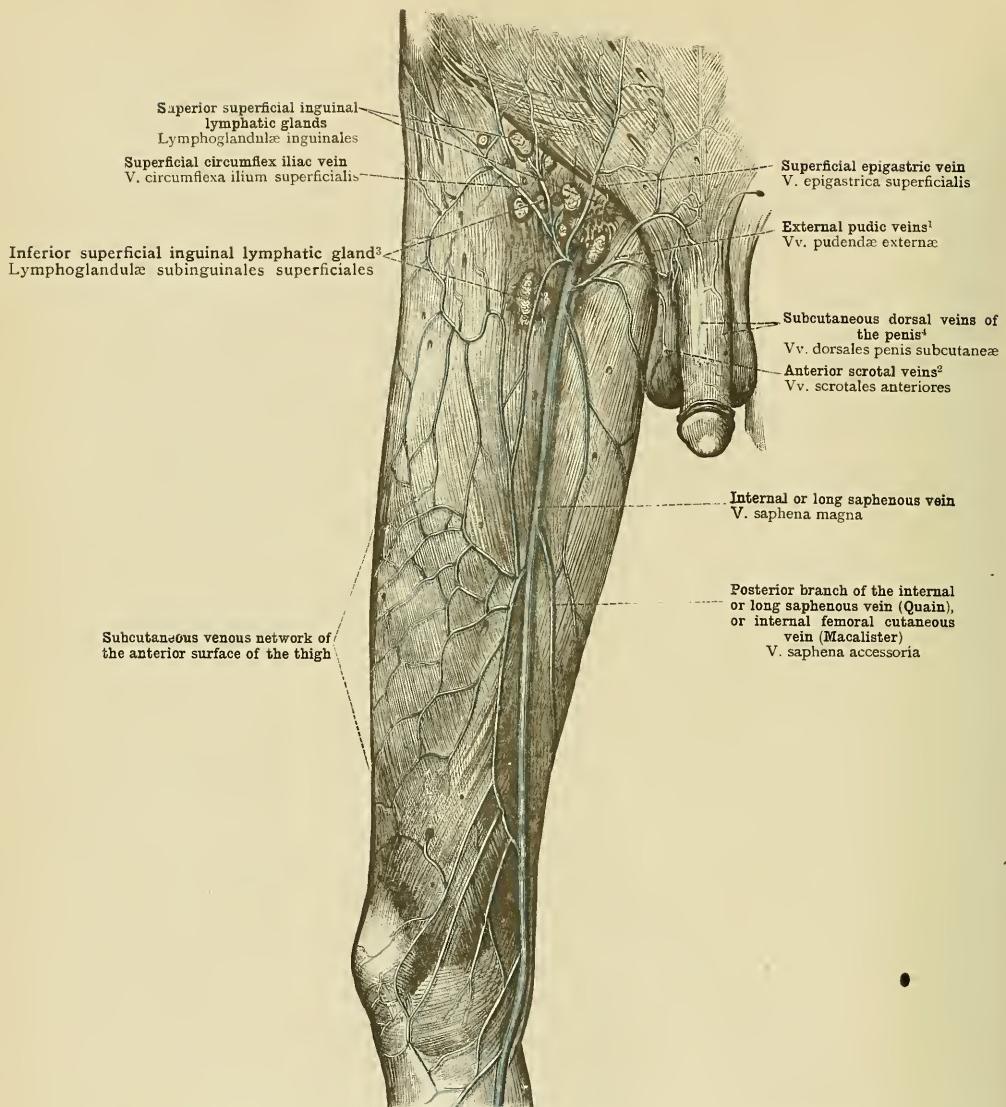
¹ See Appendix, note 229.² See Appendix, note 300.³ Or vena comites of the anterior interosseous artery.⁴ Or princeps pollicis artery and veins.⁵ Or vena comites of the ulnar artery.⁶ Or vena comites of the radial artery.⁷ Or flexor perforans muscle.⁸ Or vena comites of the radial artery.⁹ See note 14 to p. 700.¹⁰ Called by Macalister the descending digital branches of the deep palmar arch.

FIG. 1094.—THE DEEP VEINS AND ARTERIES OF THE FLEXURE OF THE ELBOW, AND THEIR CONNEXION WITH THE DEEP VEINS OF THE PALMAR SURFACE OF THE FOREARM; THE DEEP PALMAR ARTERIAL AND VENOUS ARCHES.

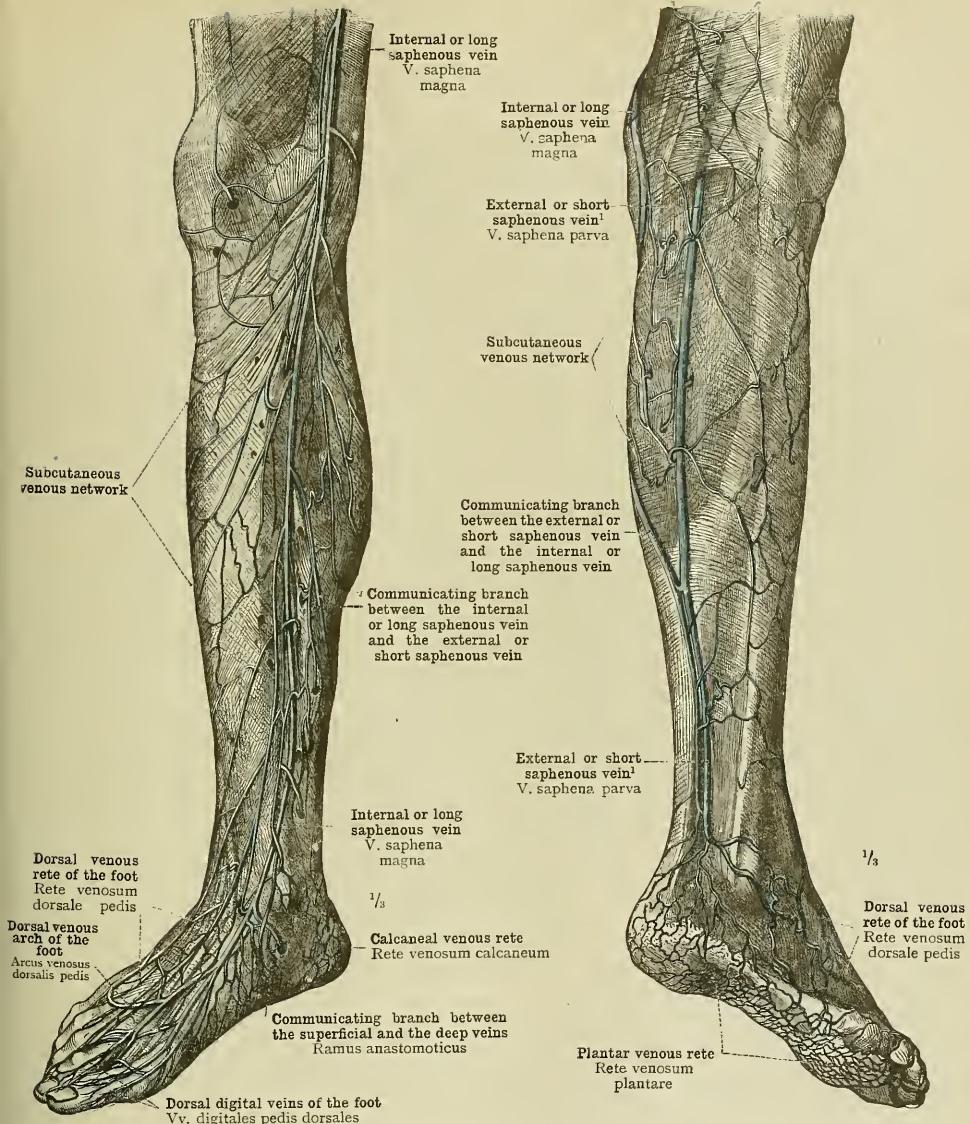


¹ According to Macalister, *pubic* tributaries of the internal or long saphenous vein.
³ Often called the *femoral lymphatic glands*.

² See Appendix, note 136.
⁴ See Appendix, note 274.

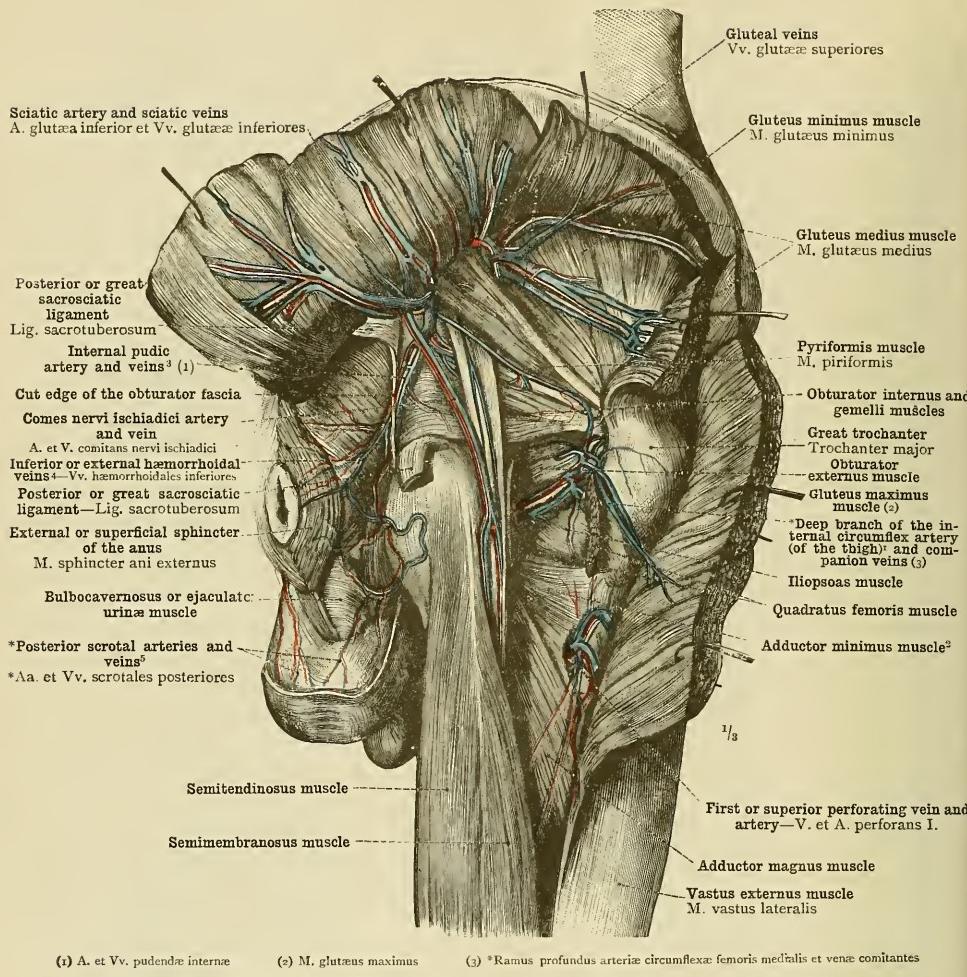
FIG. 1095.—THE CUTANEOUS VEINS OF THE ANTERIOR AND INNER SIDES OF THE RIGHT THIGH,¹ OF THE LOWER PART OF THE FRONT OF THE ABDOMEN, AND OF THE MALE EXTERNAL GENITAL ORGANS. THE INTERNAL OR LONG SAPHENOUS VEIN WITH ITS POSTERIOR BRANCH (THE INTERNAL FEMORAL CUTANEOUS VEIN, ACCORDING TO MACALISTER), VENA SAPHENA MAGNA ET VENA SAPHENA ACCESSORIA; THE SUPERFICIAL LYMPHATIC GLANDS OF THE INGUINAL AND SUBINGUINAL REGIONS.

Cutaneous Veins of the Lower Limb.



THE CUTANEOUS VEINS OF THE LEG AND THE FOOT: THE INTERNAL OR LONG SAPHENOUS VEIN, VENA SAPHENA MAGNA, AND THE EXTERNAL OR SHORT SAPHENOUS VEIN, VENA SAPHENA PARVA, WITH THE TRIBUTARIES OF THESE VEINS

¹ Called by Macalister the *sural vein*.



¹ The so-called "deep branch of the internal circumflex artery" is by English anatomists regarded as the continuation of that vessel itself. See Appendix, note 224.

² See Appendix, note 129.

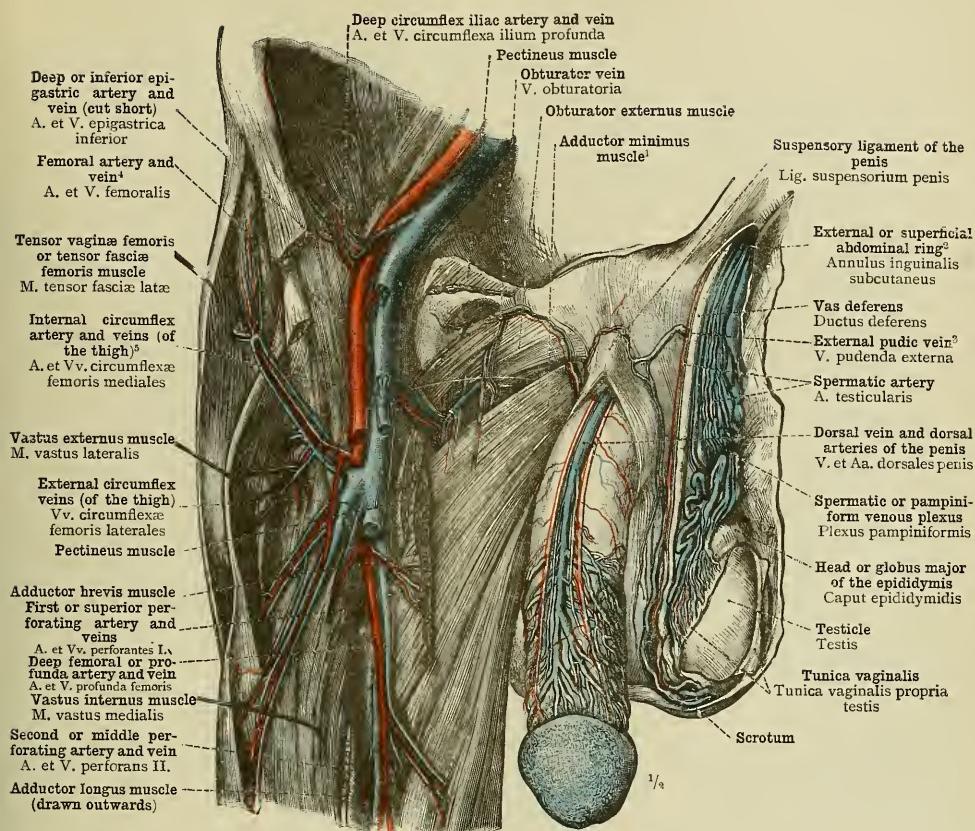
³ Called by Macalister the anal veins.

⁴ See Appendix, note 138.

FIG. 1098.—THE DEEP VEINS AND ARTERIES OF THE RIGHT GLUTEAL REGION AND ISCHIORECTAL FOSSA, WITH THE SUPERFICIAL VESSELS OF THE POSTERIOR SURFACE OF THE SCROTUM.

The gluteus maximus and gluteus medius muscles and the posterior or great sacrosciatic ligament were cut across and the segments were drawn apart, and the greater part of the quadratus femoris muscle was cut away.

Deep Veins of the Gluteal Region.



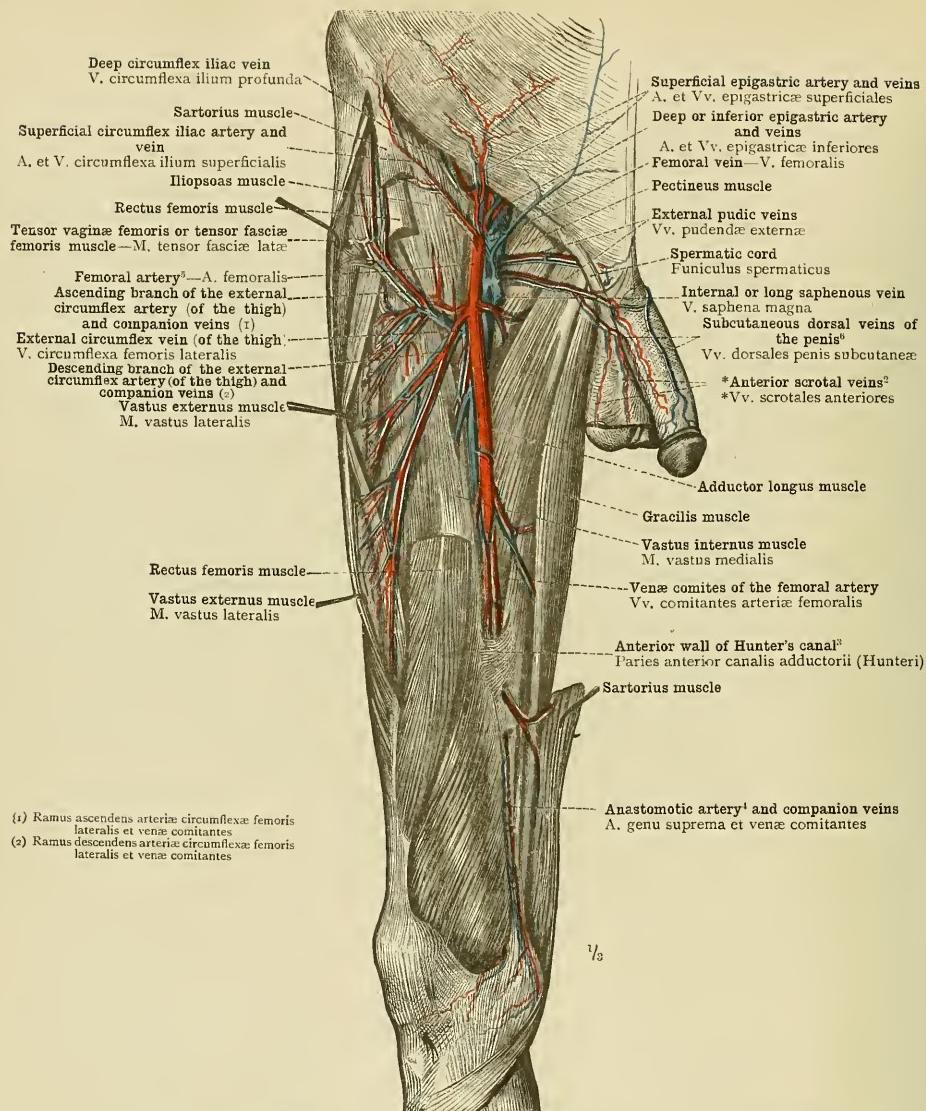
¹ See note 2 to p. 644.
² See Appendix, note 223.

³ Or external inguinal aperture.
⁵ See Appendix, note 224.

³ Called by Macalister *pubic vein*.
⁶ See Appendix, note 312.

FIG. 1099.—THE DISTRIBUTION OF THE DEEP FEMORAL OR PROFUNDA VEIN AND ARTERY, VENA ET ARTERIA PROFUNDA FEMORIS; OF THE OBTURATOR VESSELS, VASA OBTURATORIA; OF THE DORSAL VESSELS OF THE PENIS; AND OF THE VEINS OF THE TESTICLE.

The anterior wall of the abdomen was removed, together with Poupart's ligament (the superficial crural arch); the pecten, adductor brevis, and adductor longus muscles were cut away close to their origin, in order to expose the obturator and the internal circumflex vessels. On the right side, the testis and the spermatic cord were removed; while on the left side these organs were retained, and the spermatic or pampiniform venous plexus was dissected out. On the penis, which was injected both by way of the dorsal vein and by penetration of one of the corpora cavernosa, the deep-seated dorsal vessels were exposed.



¹ Or *pubic vein*, according to Macalister.
² See Appendix, note 226.

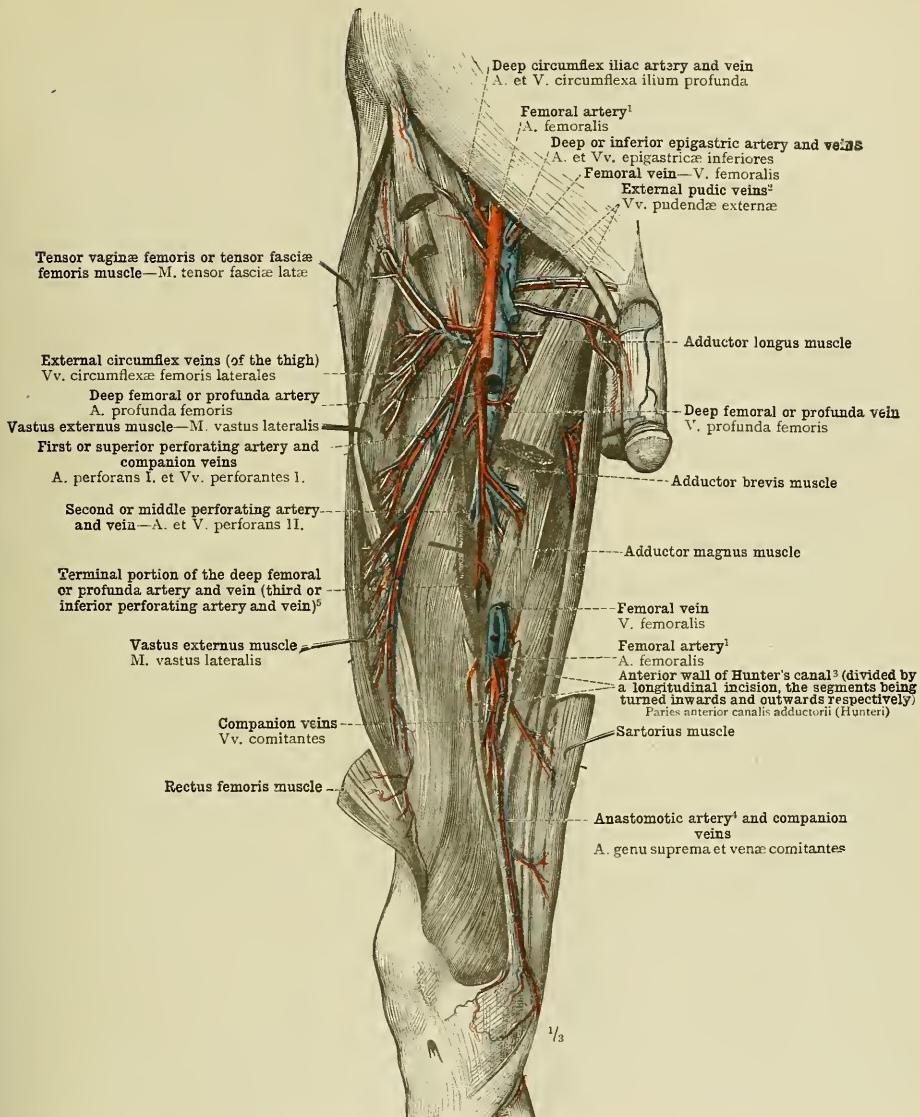
³ See Appendix, note 228.
⁴ See Appendix, note 223.

⁵ See Appendix, note 274.

FIG. 1100.—THE FEMORAL ARTERY AND VEIN, ARTERIA ET VENA FEMORALIS, UNTIL THEIR ENTRANCE INTO HUNTER'S CANAL (see Appendix, note 228), AND THE DISTRIBUTION OF THE EXTERNAL CIRCUMFLEX ARTERY AND VEIN (OF THE THIGH), ARTERIA ET VENA CIRCUMFLEXA FEMORIS LATERALIS. RIGHT THIGH, SEEN FROM BEFORE.

The sartorius and rectus femoris muscles were in part removed, and the tensor vaginæ femoris and vastus externus muscles were drawn outwards.

Deep Veins of the Front of the Thigh.

¹ See Appendix, note 227.² Called by Macalister the *pubic veins*.

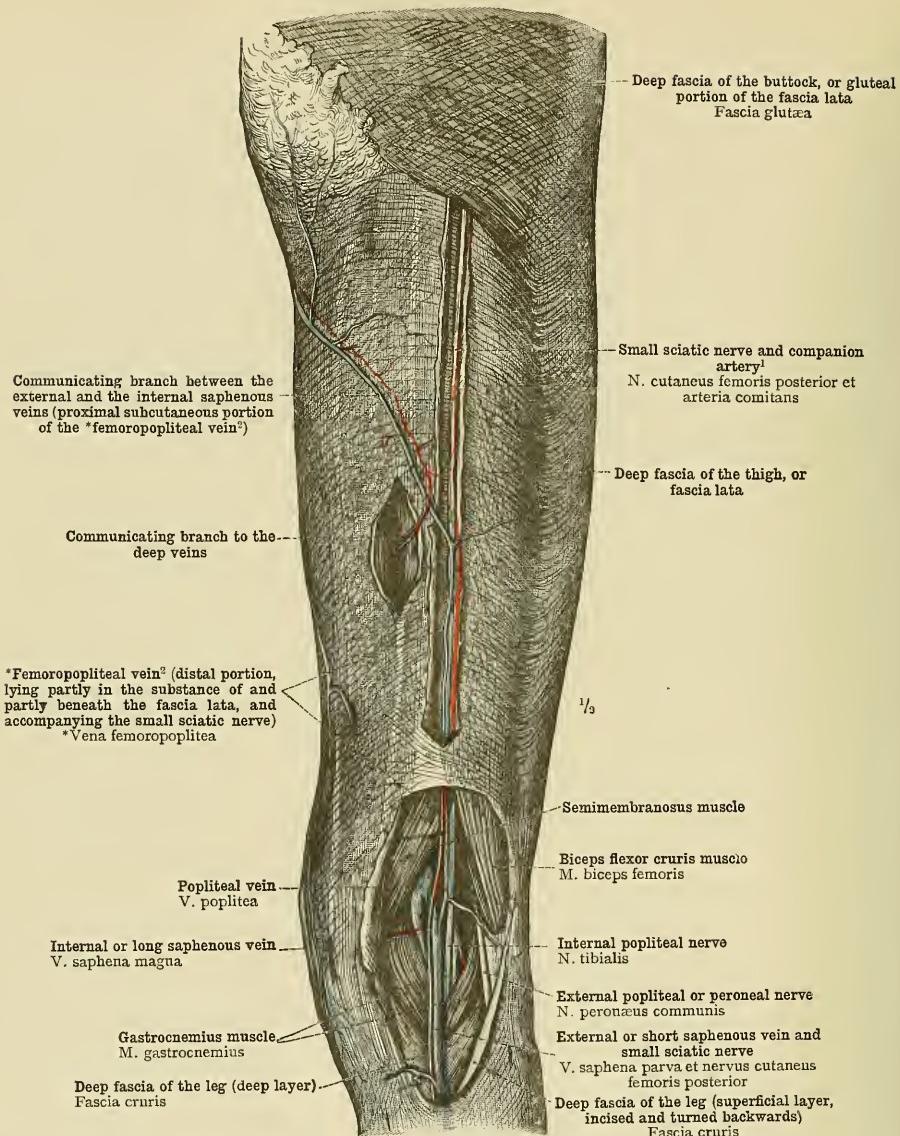
4 See Appendix, note 228.

5 See Appendix, note 312.

3 See Appendix, note 226.

FIG. 1101.—THE DEEP FEMORAL OR PROFUNDA ARTERY AND ITS COMPANION VEINS; RIGHT THIGH, SEEN FROM BEFORE.

In the preparation shown in Fig. 1100, a portion of the (superficial) femoral artery and vein were excised, part of the adductor longus muscle was removed, and Hunter's canal was opened from before.



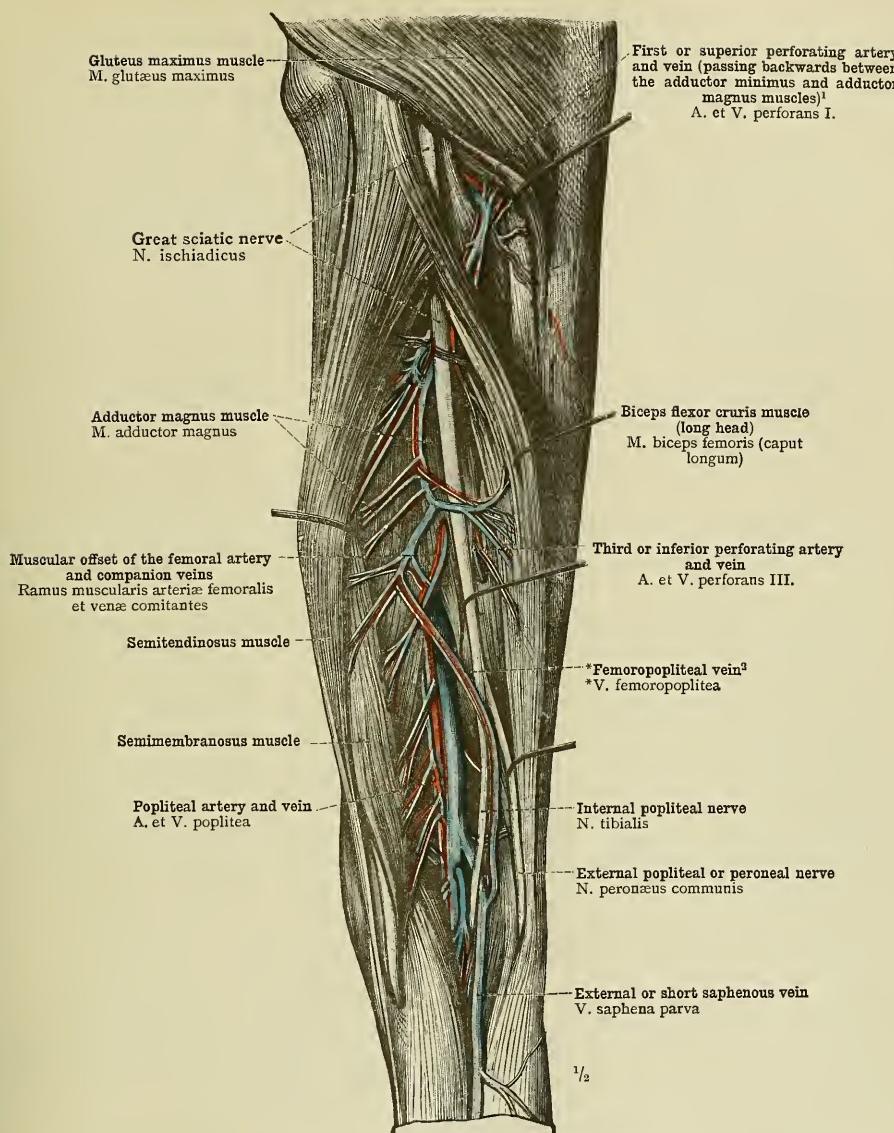
¹ This artery is one of the cutaneous branches of the sciatic artery.—TR.

² See Appendix, note 313.

FIG. 1102.—THE *FEMOROPOLITEAL VEIN, *VENA FEMOROPOLITEA (see Appendix, note ³¹²), OF THE RIGHT THIGH.

The small sciatic nerve (nervus cutaneus femoris posterior), with its companion vessels, was exposed in its course between the layers of the fascia lata along the middle of the back of the thigh; and in the region of the ham the deep fascia was entirely removed.

Superficial Veins of the Back of the Thigh.



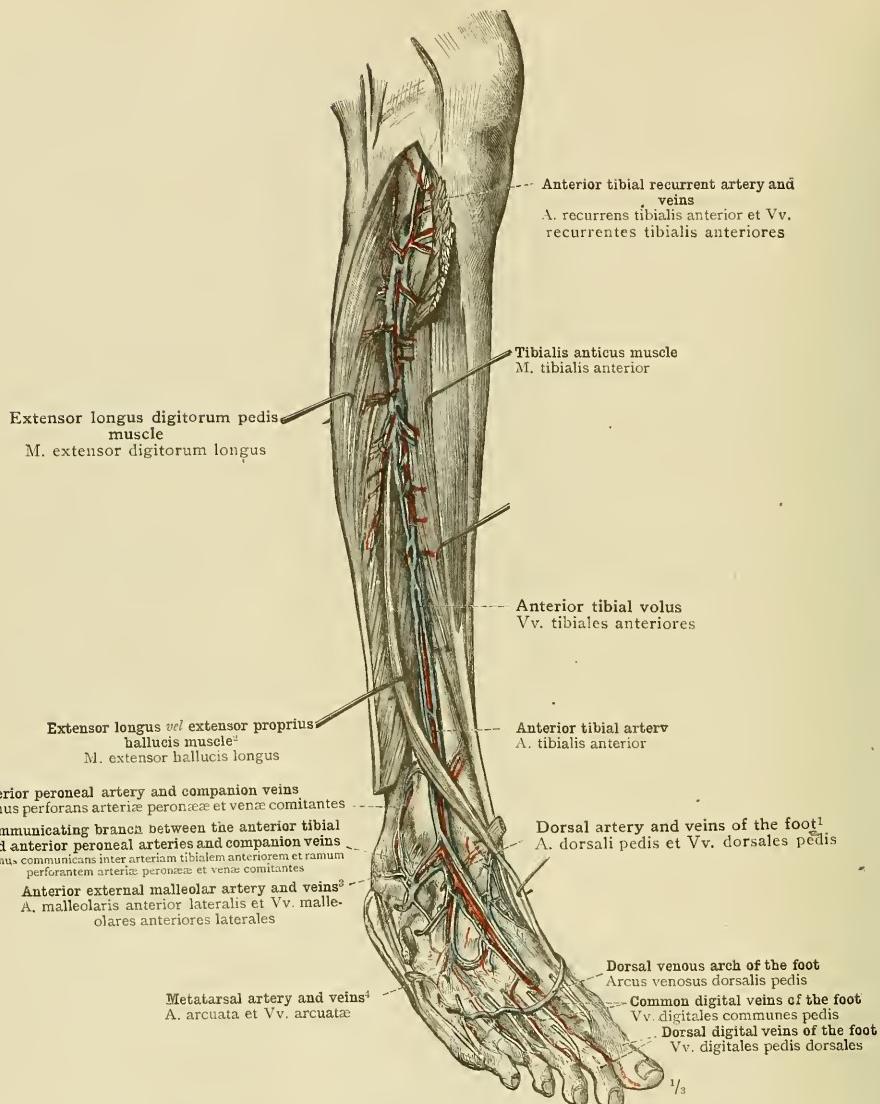
* See note ² to p. 644.

² See Appendix, note 313.

FIG. 1103.—THE PERFORATING VEINS, VENÆ PERFORANTES, AND THEIR COMMUNICATION WITH THE EXTERNAL OR SHORT SAPHENOUS VEIN, DISSECTED OUT AT THE BACK OF THE RIGHT THIGH.

The biceps flexor cruris muscle was drawn as far outwards, and the inner hamstring muscles were drawn as far inwards, as possible.

Deep Veins of the Back of the Thigh.



¹ Often known in England by their Latin names of *dorsalis pedis artery and veins*.
² See note ² to p. 364, in Part III.

³ See Appendix, note 236.

⁴ See Appendix, note 239.

FIG. 1104.—THE MUSCLES OF THE FRONT OF THE LEG WERE SEPARATED, THE PROXIMAL PORTION OF THE TIBIALIS ANTIKUS MUSCLE WAS DETACHED FROM THE BONE AND TURNED FORWARDS, THE EXTENSOR BREVIS DIGITORUM PEDIS MUSCLE AND THE TENDONS OF THE EXTENSOR LONGUS DIGITORUM PEDIS MUSCLE WERE REMOVED FROM THE DORSUM OF THE TARSUS.

Deep Veins and Arteries of the Front of the Leg and the Dorsum of the Foot.

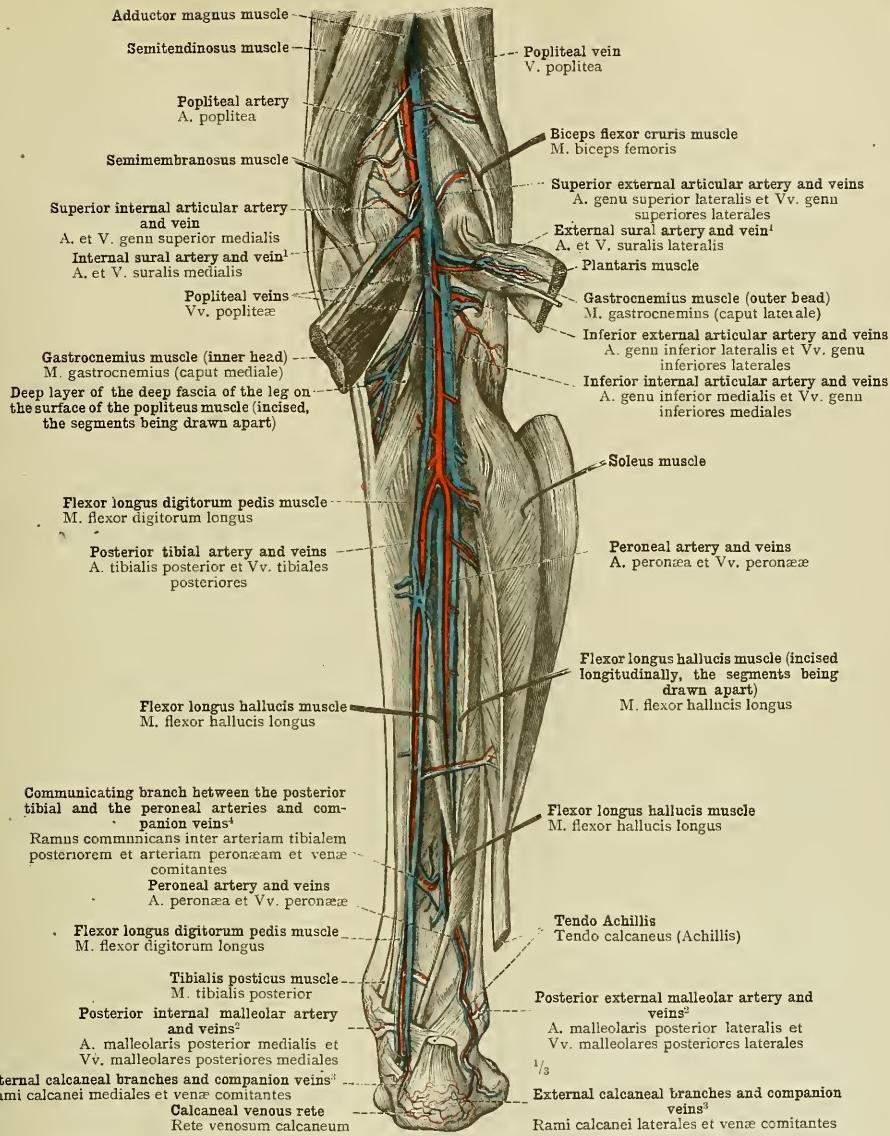
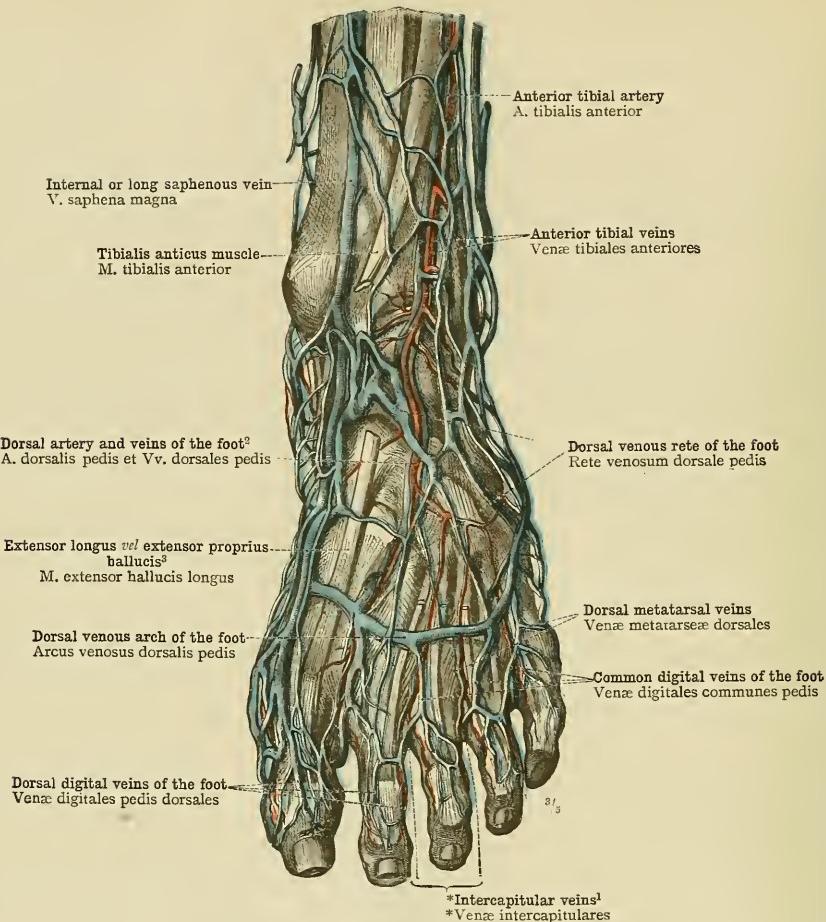
¹ See Appendix, note 22.² See Appendix, note 23.³ See Appendix, note 22.⁴ See Appendix, note 24.

FIG. 1105.—THE HAMSTRING MUSCLES AND THE PROXIMAL EXTREMITIES (INNER AND OUTER) OF THE GASTROCNEMIUS MUSCLE WERE DRAWN APART; THE TENDO ACHILLIS WAS CUT ACROSS TRANSVERSELY A LITTLE ABOVE THE TUBEROSITY OF THE CALCANEUM, THE SOLEUS MUSCLE WAS DETACHED FROM THE TIBIA AND WAS DRAWN OUTWARDS WITH THE GASTROCNEMIUS MUSCLE; THE FLEXOR LONGUS HALLUCIS MUSCLE WAS INCISED LONGITUDINALLY AND THE SEGMENTS WERE DRAWN APART



¹ The *intercapitular veins of the foot are homologous with those of the hand. See Appendix, note 300.
² Often known in England by their Latin name of *dorsalis pedis artery and veins*.

³ See note ² to p. 364, in Part III.

FIG. 1106.—THE SUPERFICIAL VEINS AND THE DEEP VEINS AND ARTERIES OF THE DORSUM OF THE FOOT: THE DORSAL DIGITAL VEINS OF THE FOOT, VENÆ DIGITALES PEDIS DORSALES, AND THE COMMON DIGITAL VEINS OF THE FOOT, VENÆ DIGITALES COMMUNES PEDIS; THE DORSAL METATARSAL VEINS, VENÆ METATARSÆ DORSALES, AND THE *INTERCAPITULAR VEINS (OF THE FOOT), *VENÆ INTERCAPITULARES (PEDIS); THE DORSAL VENOUS ARCH OF THE FOOT, ARCUS VENOSUS DORSALIS PEDIS, AND THE DORSAL VENOUS RETE OF THE FOOT, RETE VENOSUM DORSALE PEDIS; THE CONTINUITY OF THE DORSAL VEINS OF THE FOOT, VENÆ DORSALES PEDIS, WITH THE ANTERIOR TIBIAL VEINS, VENÆ TIBIALES ANTERIORES; THE INTERNAL OR LONG SAPHENOUS VEIN, VENA SAPHENA MAGNA.

Of the muscles of the front of the leg, the tibialis anticus muscle only was retained; on the dorsum of the foot, the extensor brevis digitorum pedis muscle was removed, but the distal extremities of the tendons of the extensor longus digitorum pedis muscle were retained.

Veins of the Dorsum of the Foot.

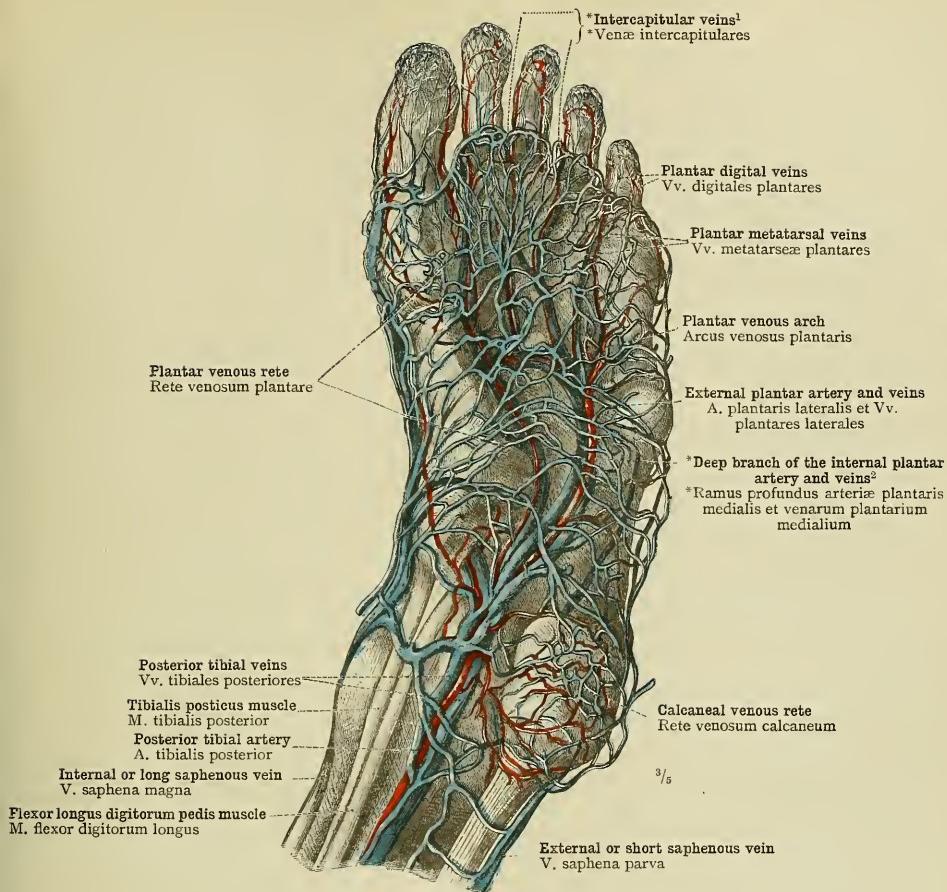
¹ See Appendix, note 30.² See Appendix, note 23.

FIG. 1107.—THE SUPERFICIAL VEINS AND THE DEEP VEINS AND ARTERIES OF THE SOLE OF THE FOOT: THE PLANTAR VENOUS RETE, RETE VENOSUM PLANTARE, AND THE CALCANEAL VENOUS RETE, RETE VENOSUM CALCANEUM; THE PLANTAR DIGITAL VEINS, VENÆ DIGITALES PLANTARES, AND THE *INTERCAPITULAR VEINS (OF THE FOOT), *VENÆ INTERCAPITULARES (PEDIS); THE PLANTAR METATARSAL VEINS, VENÆ METATARSEÆ PLANTARES, AND THE PLANTAR VENOUS ARCH, ARCUS VENOSUS PLANTARIS; THE CONTINUITY OF THE INTERNAL AND EXTERNAL PLANTAR VEINS, VENÆ PLANTARES MEDIALIS ET LATERALIS, WITH THE POSTERIOR TIBIAL VEINS, VENÆ TIBIALES POSTERIORES; THE PLANTAR RADICLES OF THE INTERNAL OR LONG AND THE EXTERNAL OR SHORT SAPHENOUS VEINS, VENÆ SAPHENÆ MAGNA ET PARVA.

The muscles of the sole of the foot were entirely removed, the superficial and deep bloodvessels being left intact.

Veins of the Sole of the Foot.

SYSTEMA LYMPHATICUM
THE LYMPHATIC SYSTEM

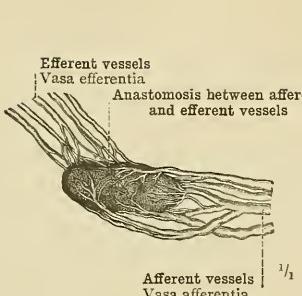


FIG. 1108.—LYMPHATIC GLAND (HUMAN) FROM THE INTERNAL ILIAC GROUP, OF WHICH THE AFFERENT AND EFFERENT VESSELS HAVE BEEN INJECTED.

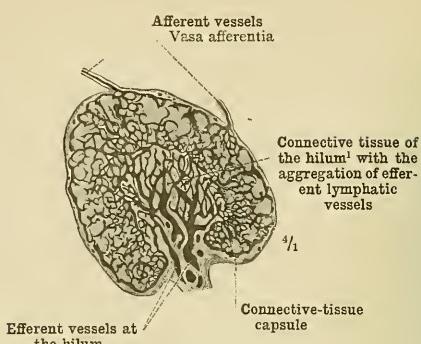


FIG. 1109.—TRANSVERSE SECTION THROUGH ONE OF THE INTERNAL ILIAC LYMPHATIC GLANDS OF MAN IN WHICH THE LYMPHATIC VESSELS HAVE BEEN INJECTED WITH PRUSSIAN BLUE AND THE GLAND HAS SUBSEQUENTLY BEEN HARDENED IN ALCOHOL.

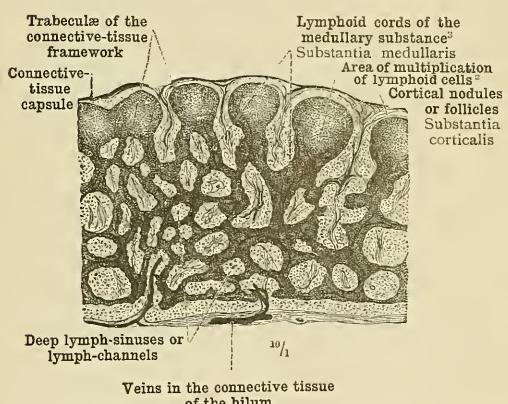


FIG. 1110.—SECTION OF A MESENTERIC LYMPHATIC GLAND, HARDENED IN ALCOHOL.

The bloodvessels, which were injected with Prussian blue, are tinted deep black.

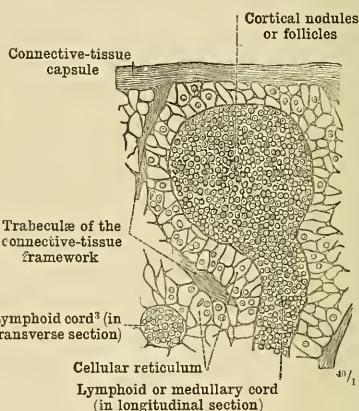


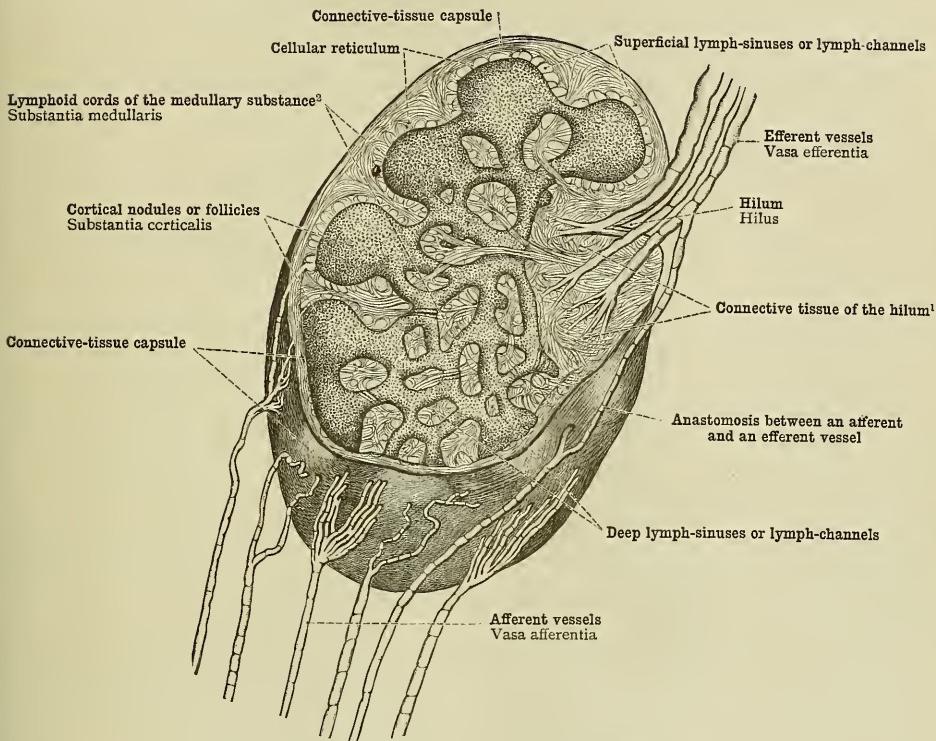
FIG. 1111.—CORTICAL NODULES OR FOLLICLES AND LYMPHOID OR MEDULLARY CORDS OF A MESENTERIC LYMPHATIC GLAND, SEEN IN TRANSVERSE SECTION, AND MAGNIFIED FORTY DIAMETERS.

¹ Connective Tissue of the Hilum.—“In the region of the hilum, where the efferent vessels leave the gland, the trabeculae combine with the connective-tissue capsule to form a dense mass of connective tissue, the *Hilusstruma*, in the interior of which the radicles of the efferent lymphatic vessels are aggregated” (Von Langer and Toldt, *op. cit.*, pp. 561, 562). It is this term *Hilusstruma* which I have translated by the phrase “connective tissue of the hilum.”—TR.

² *Kernzentrum* in the German original.

³ Or *medullary cords* (Foster).

Lymphoglandulæ—Lymphatic glands.

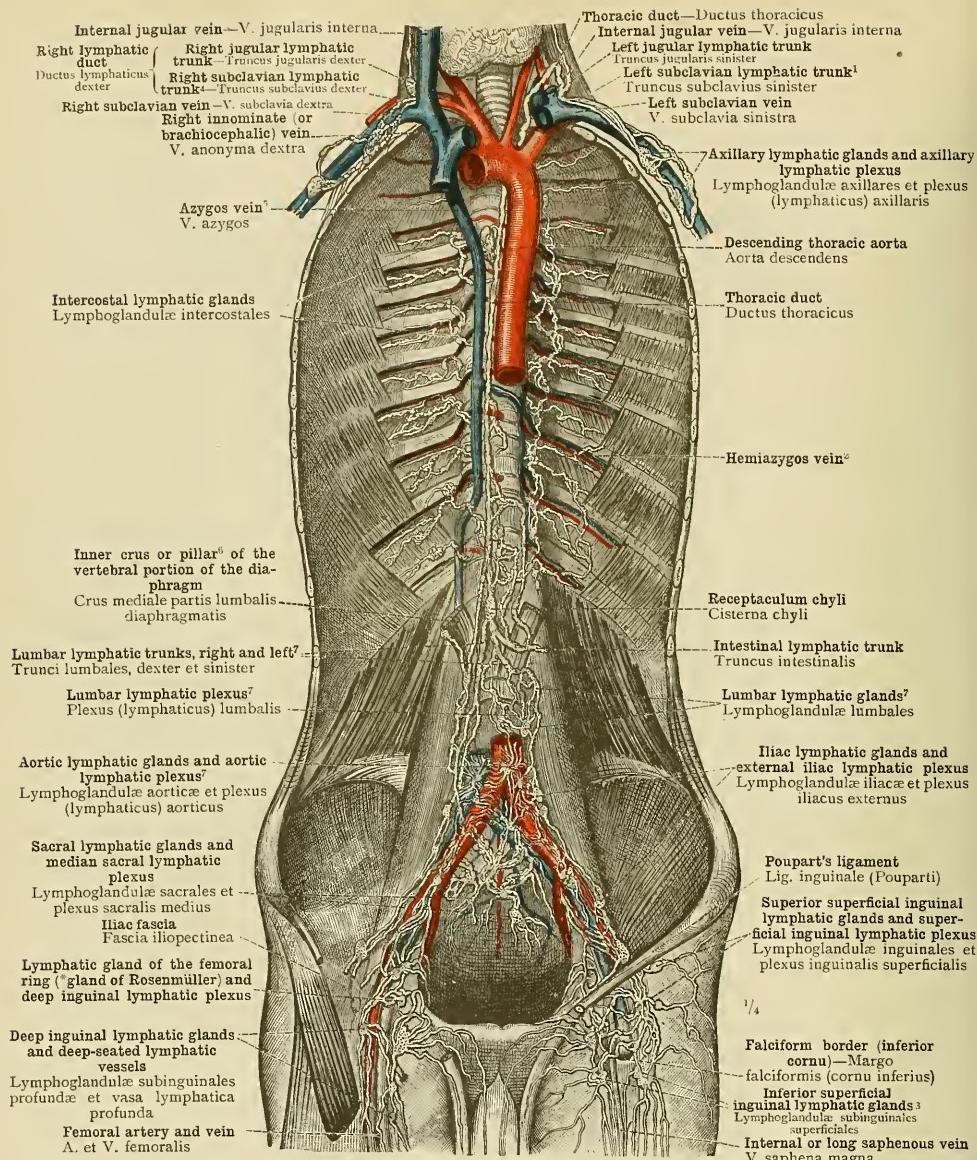


¹ See note ¹ to p. 716.

² Or medullary cords (Foster).

FIG. 1112.—DIAGRAMMATIC REPRESENTATION OF THE INTERNAL STRUCTURE OF A LYMPHATIC GLAND WITH AFFERENT AND EFFERENT LYMPHATIC VESSELS, VASA AFFERENTIA ET VASA EFFERENTIA.

Lymphoglandulæ—Lymphatic glands.



¹ According to Quain, the *left axillary lymphatic trunk*.

² Often called the *femoral lymphatic glands*.

³ Known also as the *right or large azygous vein*.

⁷ See Appendix, note 3⁴.

² Known also as the *left lower or small azygous vein*.

⁴ According to Quain, the *right axillary lymphatic trunk*.

⁶ See note 1 to p. 286, in Part III.

FIG. 1113.—THE THORACIC DUCT, DUCTUS THORACICUS, AND THE LYMPHATIC TRUNKS OPENING INTO THAT VESSEL ; THE LYMPHATIC VESSELS AND LYMPHATIC GLANDS OF THE POSTERIOR WALL OF THE ABDOMEN ; THE SUPERFICIAL AND DEEP LYMPHATIC VESSELS AND LYMPHATIC GLANDS OF THE GROIN.

Ductus thoracicus—The thoracic duct.

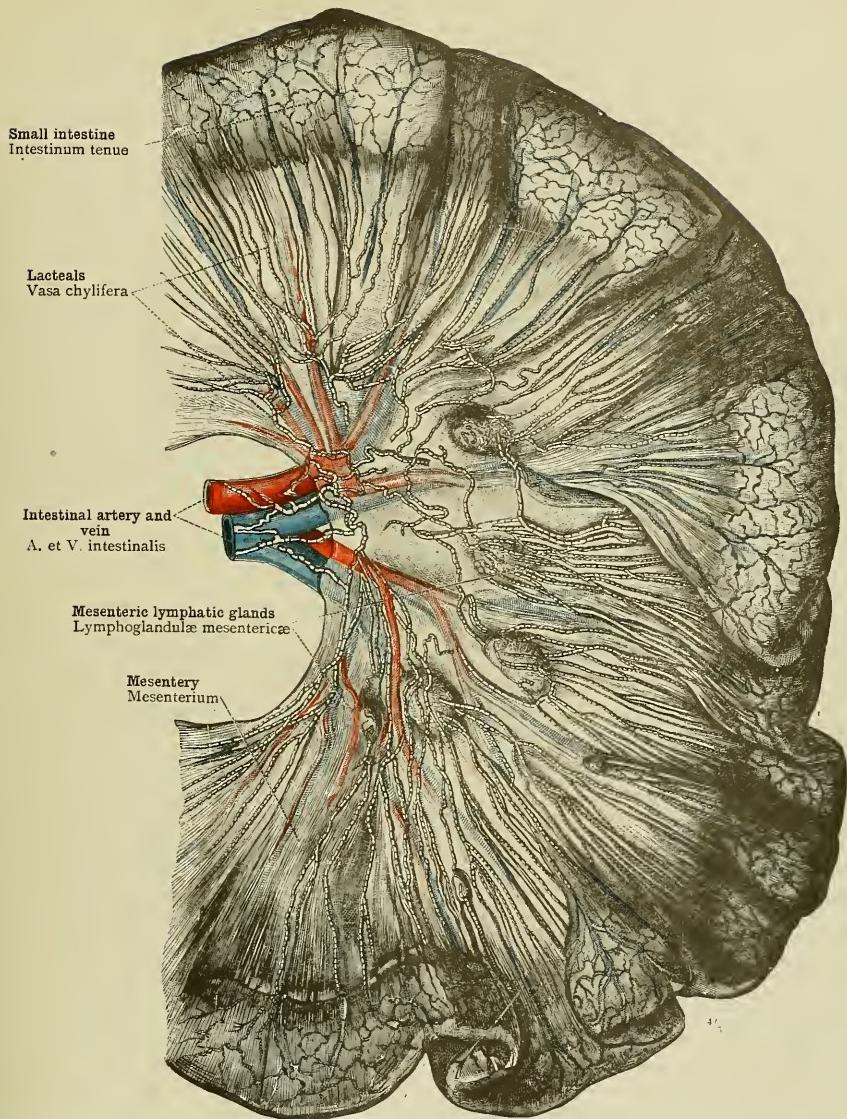
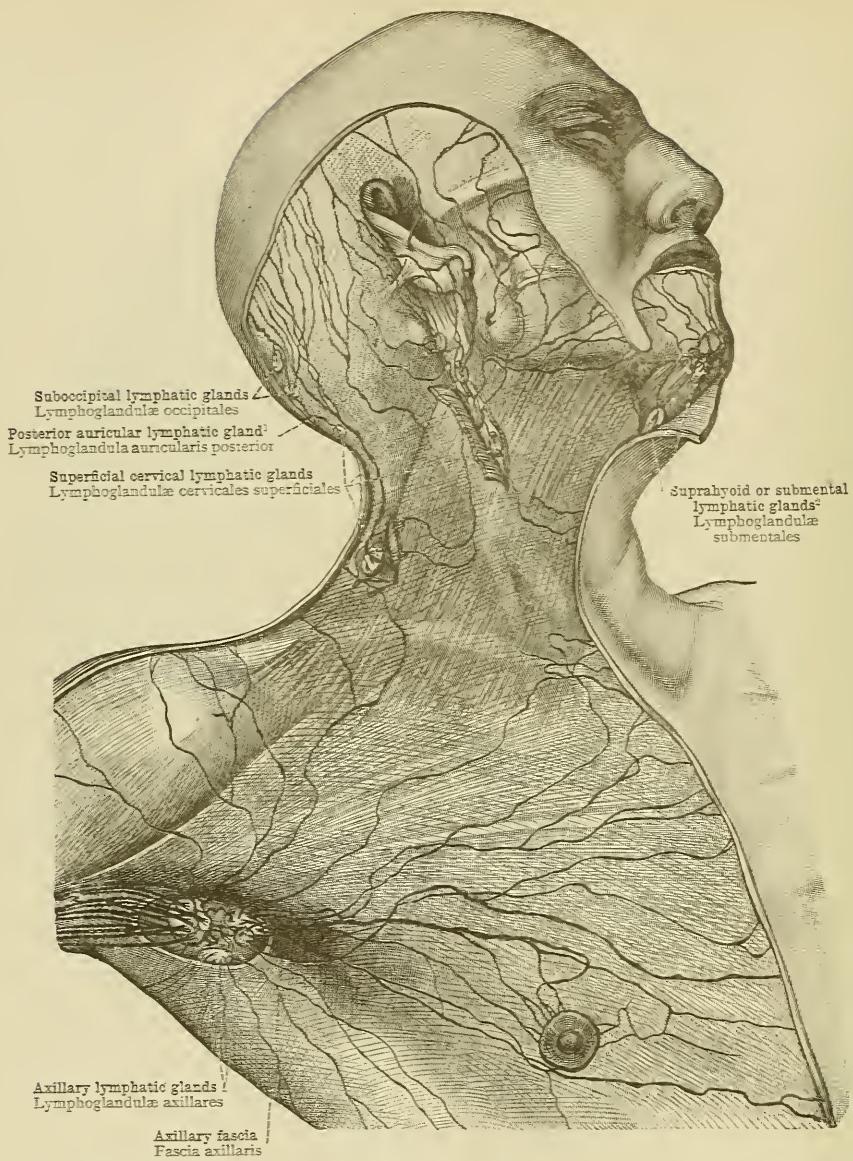


FIG. 1114.—THE LACTEALS AND THE MESENTERIC LYMPHATIC GLANDS, DEMONSTRATED IN A LOOP OF SMALL INTESTINE BY INJECTION WITH METALLIC MERCURY.

Vasa chylifera—Lacteals.—Lymphoglandulae mesentericae—Mesenteric lymphatic glands.

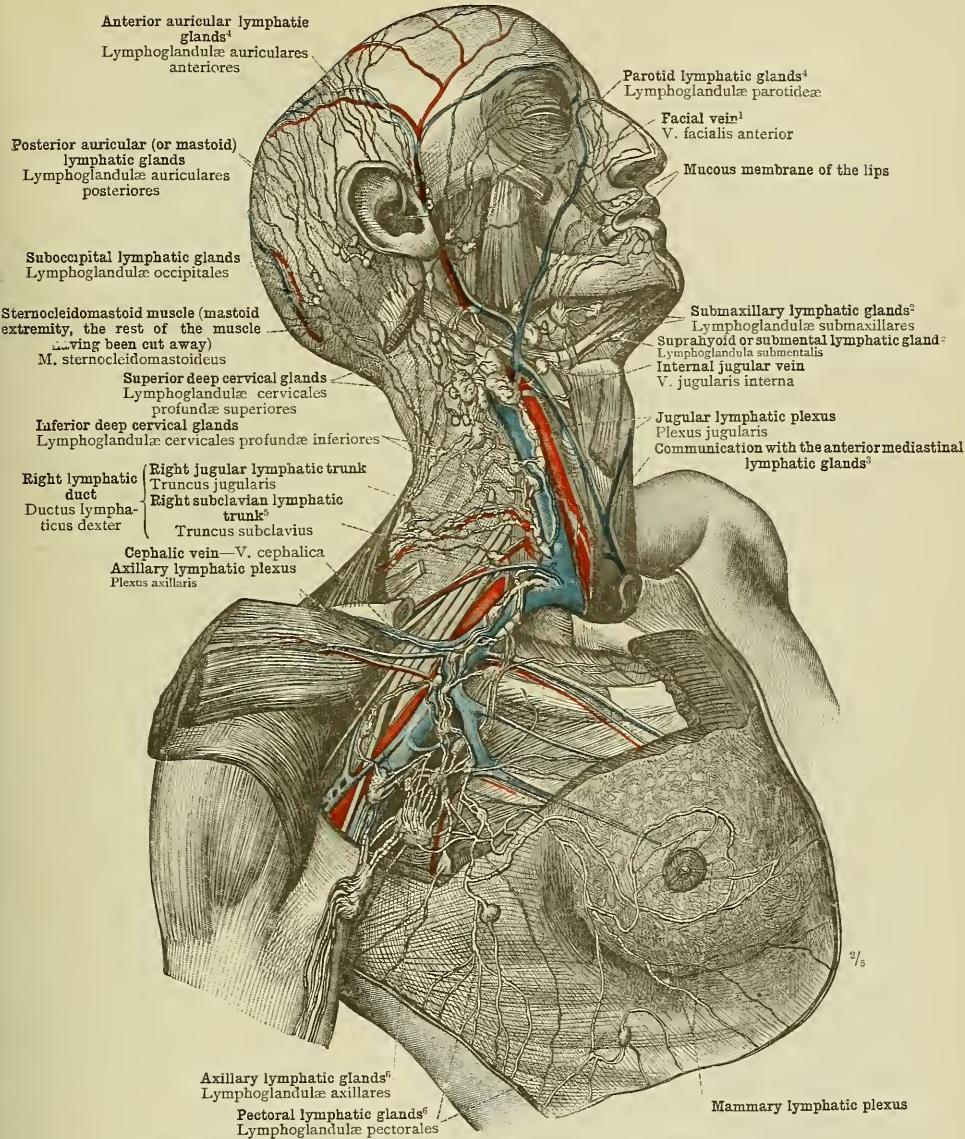


¹ This is one of the mastoid lymphatic glands in Quain's nomenclature.

² See Appendix, note 34.

FIG. 1115.—THE SUPERFICIAL LYMPHATIC VESSELS, *VASA LYMPHATICA SUPERFICIALE*, OF THE HEAD AND NECK, AND OF THE UPPER THORACIC AND THE HUMERAL REGIONS, WITH THE SUPERFICIAL LYMPHATIC GLANDS WITH WHICH THEY ARE CONNECTED.

Lymphatic Vessels of the Head, the Neck, and the Anterior Wall of the Thorax.



¹ Sometimes distinguished as the *anterior facial vein*. See Appendix, note 383.

³ See Appendix, note 316.

⁴ See Appendix, note 317.

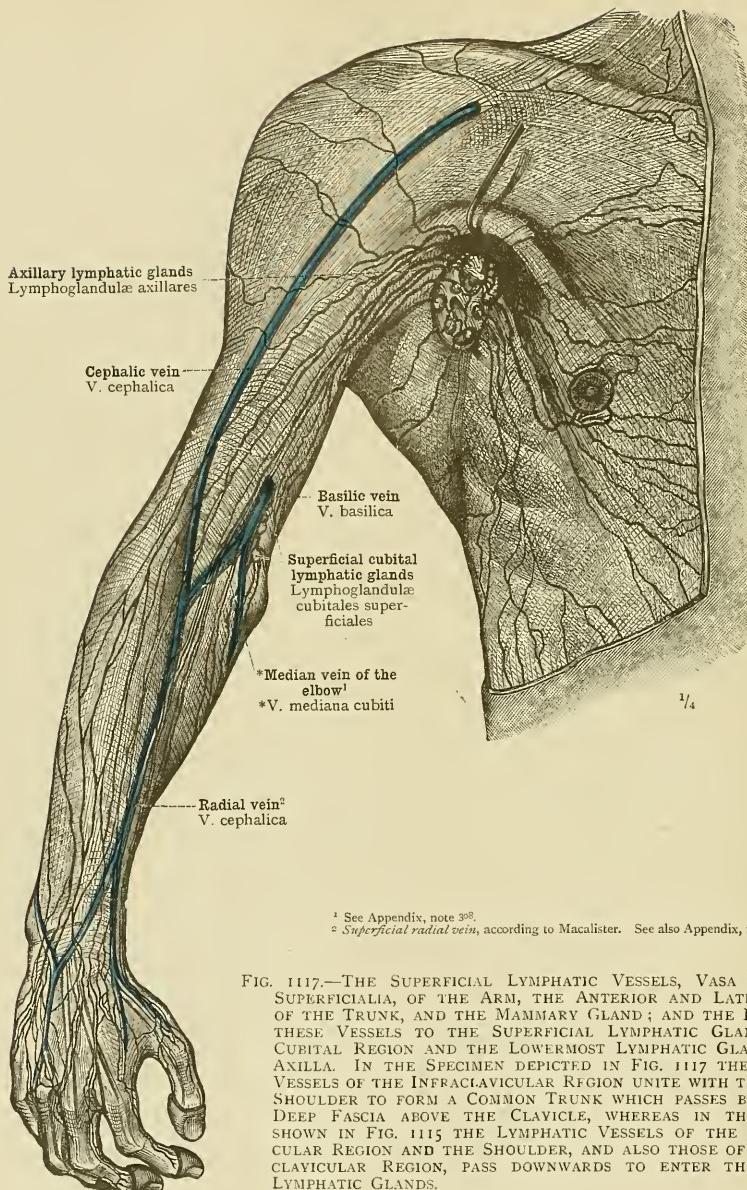
⁵ According to Quain, the right axillary lymphatic trunk.

⁶ The pectoral, the subscapular, and the infraclavicular lymphatic glands are described by Quain as subgroups of the axillary lymphatic glands.

² See Appendix, note 315.

FIG. 1116.—THE SUPERFICIAL LYMPHATIC VESSELS, *VASA LYMPHATICA SUPERFICIALIA*, OF THE HEAD, AND THE DEEP LYMPHATIC VESSELS, *VASA LYMPHATICA PROFUNDA*, OF THE NECK AND THE AXILLA, WITH THE ASSOCIATED LYMPHATIC GLANDS; THE LYMPHATIC VESSELS OF THE FEMALE MAMMARY GLAND.

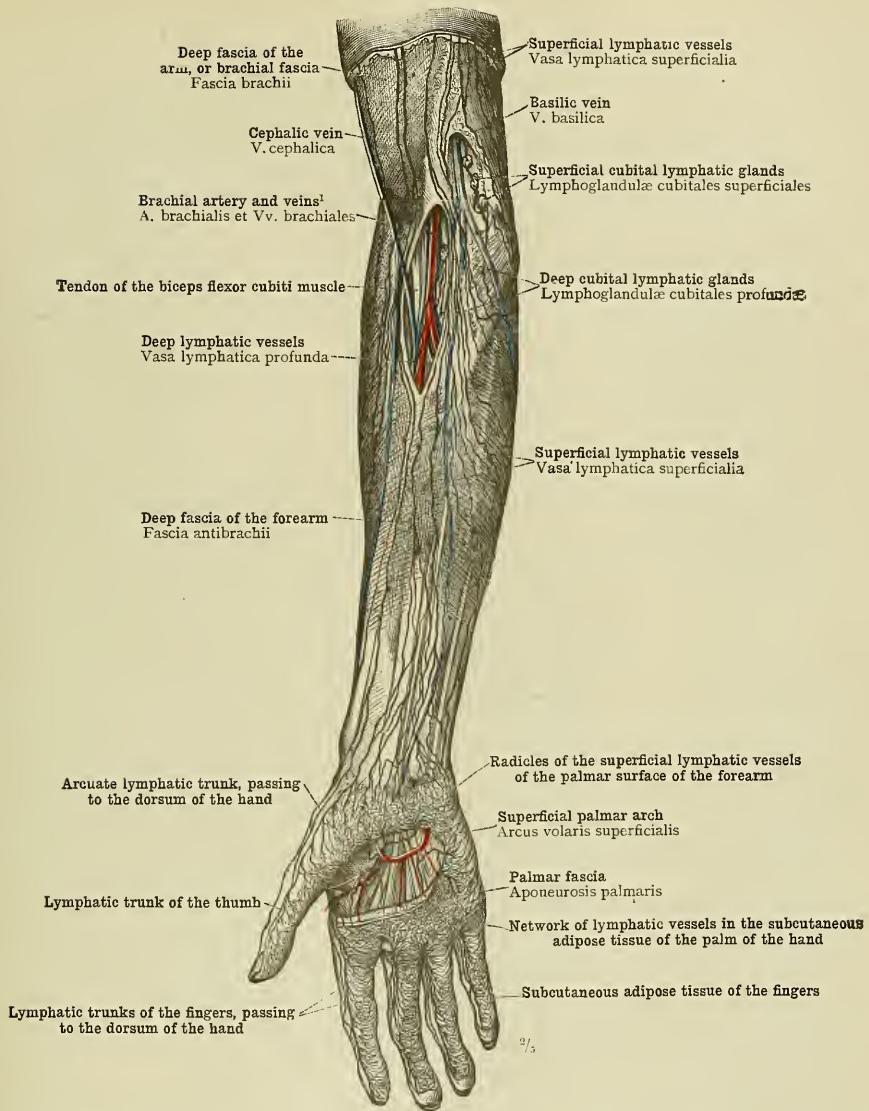
Lymphatic Vessels of the Head, the Neck, the Axilla, and the Wall of the Thorax.



¹ See Appendix, note 308.
² Superficial radial vein, according to Macalister. See also Appendix, note 305.

FIG. 1117.—THE SUPERFICIAL LYMPHATIC VESSELS, VASA LYMPHATICA SUPERFICIALIA, OF THE ARM, THE ANTERIOR AND LATERAL WALLS OF THE TRUNK, AND THE MAMMARY GLAND; AND THE RELATION OF THESE VESSELS TO THE SUPERFICIAL LYMPHATIC GLANDS OF THE CUBITAL REGION AND THE LOWERMOST LYMPHATIC GLANDS OF THE AXILLA. IN THE SPECIMEN DEPICTED IN FIG. 1117 THE LYMPHATIC VESSELS OF THE INFRACLAVICULAR REGION UNITE WITH THOSE OF THE SHOULDER TO FORM A COMMON TRUNK WHICH PASSES BENEATH THE DEEP FASCIA ABOVE THE CLAVICLE, WHEREAS IN THE SPECIMEN SHOWN IN FIG. 1115 THE LYMPHATIC VESSELS OF THE INFRACLAVICULAR REGION AND THE SHOULDER, AND ALSO THOSE OF THE SUPRACLAVICULAR REGION, PASS DOWNTOWARDS TO ENTER THE AXILLARY LYMPHATIC GLANDS.

Lymphatic Vessels of the Upper Limb and the Anterior and Lateral Walls of the Trunk.



* Or *venae comites* of the brachial artery.

FIG. IIII8.—LYMPHATIC VESSELS OF THE PALMAR SURFACE OF THE FOREARM AND HAND. IN THE FLEXURE OF THE ELBOW (ANTECUBITAL FOSSA), THE DEEP LYMPHATIC VESSELS AND GLANDS HAVE BEEN EXPOSED BY DIVISION OF THE DEEP FASCIA.

Lymphatic Vessels of the Upper Limb.

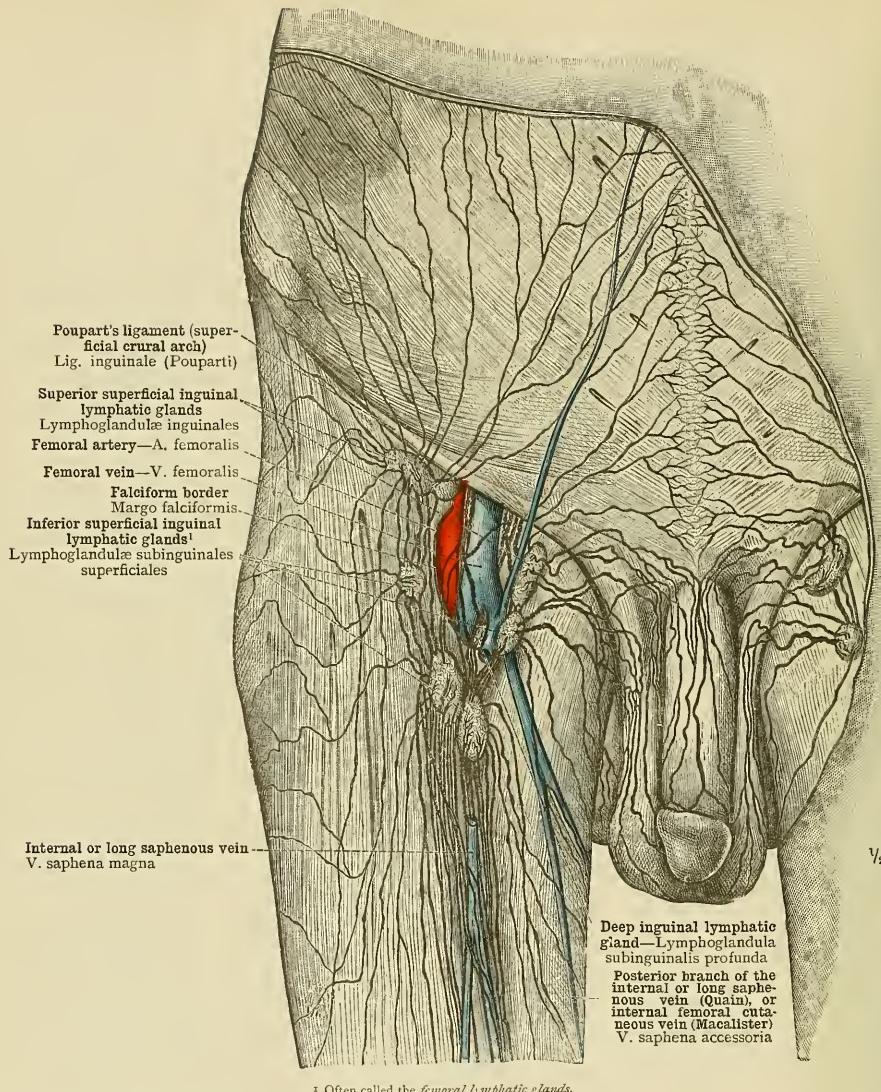
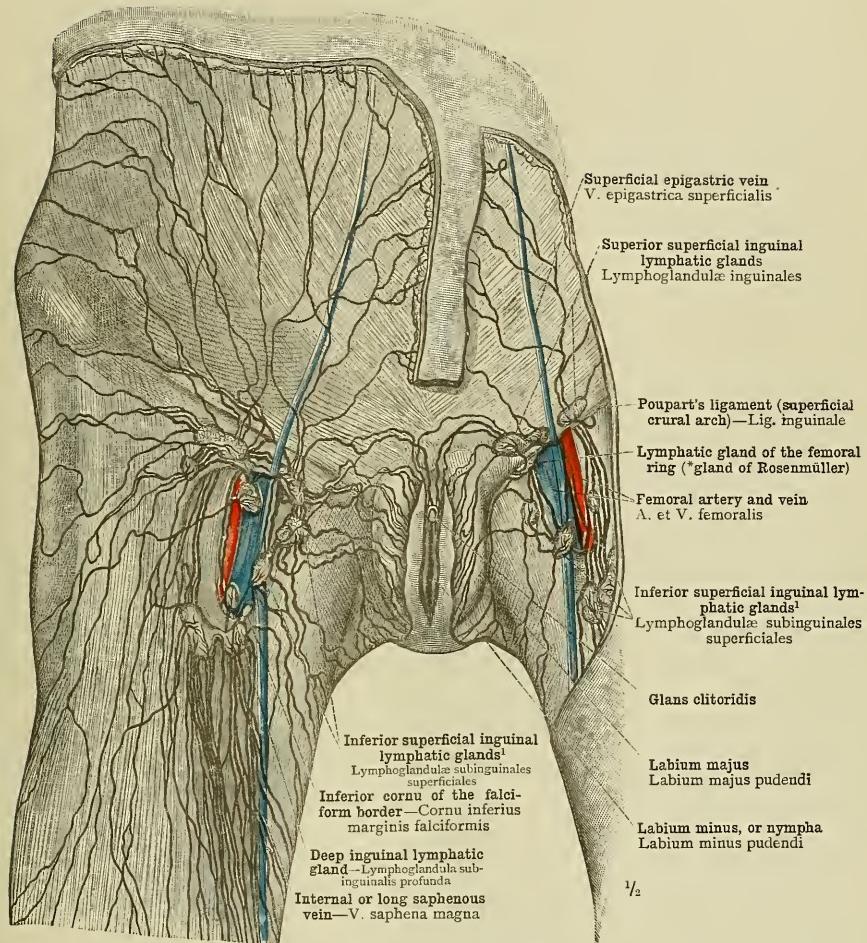


FIG. 1119.—THE SUPERFICIAL LYMPHATIC VESSELS, *VASA LYMPHATICA SUPERFICIALIA*, OF THE INGUINAL REGION, THE MALE EXTERNAL GENITAL ORGANS, AND THE ADJOINING PORTIONS OF THE THIGH AND ABDOMEN, WITH THE ASSOCIATED LYMPHATIC GLANDS; THE SUPERFICIAL INGUINAL LYMPHATIC PLEXUS.

The superior cornu of the falciform border and part of the internal or long saphenous vein were removed.

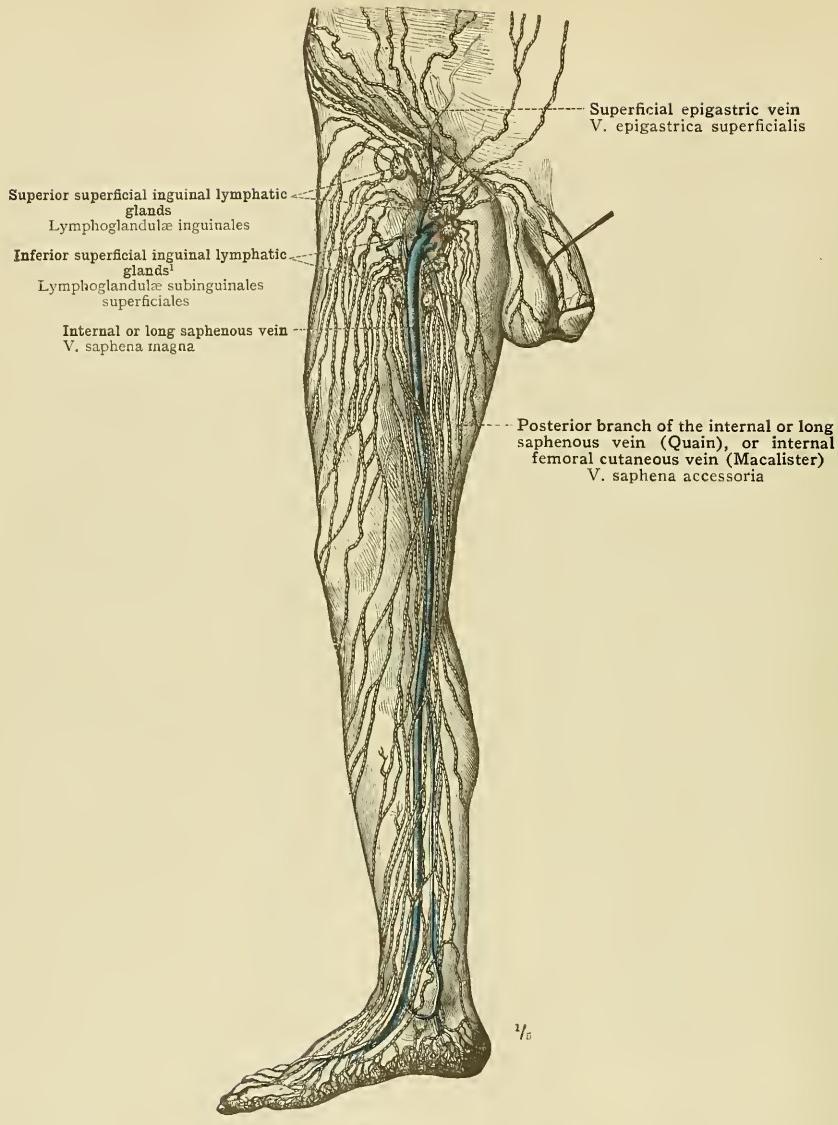
Superficial Lymphatic Vessels and Glands of the Inguinal Region and the Male External Genital Organs.



* Often called the *femoral lymphatic glands*.

FIG. 1120.—THE SUPERFICIAL LYMPHATIC VESSELS, *VASA LYMPHATICA SUPERFICIALES*, OF THE INGUINAL REGION, THE FEMALE EXTERNAL GENITAL ORGANS, AND THE ADJOINING PORTIONS OF THE THIGH AND ABDOMEN, WITH THE ASSOCIATED LYMPHATIC GLANDS.

Superficial Lymphatic Vessels and Glands of the Inguinal Region and the Female External Genital Organs.



¹ Often called the *femoral lymphatic glands*.

FIG. 1121.—THE SUPERFICIAL LYMPHATIC VESSELS, VASA LYMPHATICA SUPERFICIA, OF THE RIGHT LOWER LIMB, THE MALE EXTERNAL GENITAL ORGANS, AND THE ANTERIOR WALL OF THE ABDOMEN, WITH THE SUPERIOR SUPERFICIAL LYMPHATIC GLANDS, LYMPHOGLANDULÆ INGUINALES, AND THE INFERIOR SUPERFICIAL LYMPHATIC GLANDS (OFTEN CALLED THE FEMORAL LYMPHATIC GLANDS), LYMPHORLANDULÆ SUBINGUINALES SUPERFICIALES. SEEN FROM BEFORE AND THE INNER SIDE.

The lymphatic vessels were injected with metallic mercury.

LYMPHATIC VESSELS OF THE LOWER LIMB.

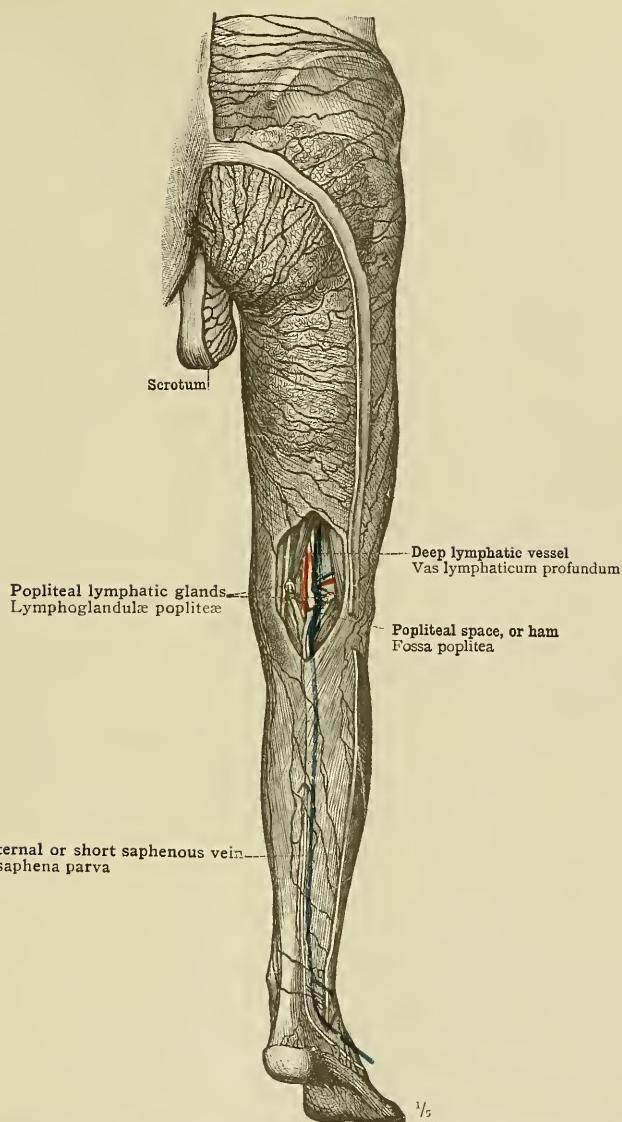


FIG. 1122.—THE SUPERFICIAL LYMPHATIC VESSELS *VASA LYMPHATICA SUPERFICIALIA*, OF THE BACK OF THE RIGHT LOWER LIMB, THE HIP AND THE SCROTUM. IN THE POPLITEAL SPACE, OR HAM, THE DEEP LYMPHATIC VESSELS AND GLANDS HAVE BEEN EXPOSED BY DIVISION OF THE DEEP FASCIA.

Lymphatic Vessels of the Lower Limb.

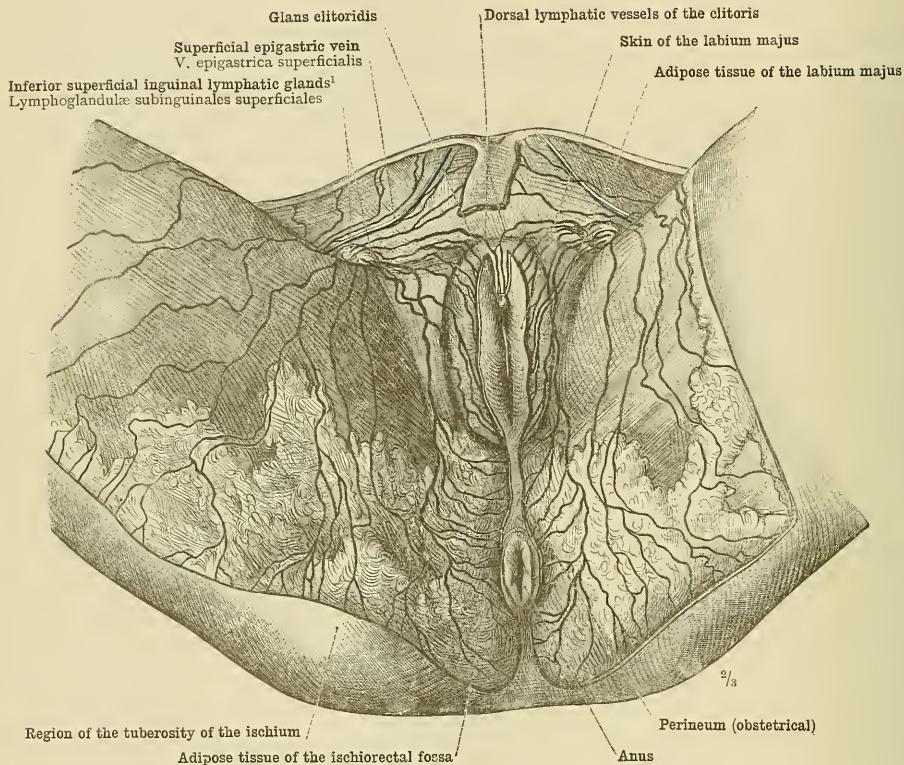


FIG. 1123.—THE SUPERFICIAL LYMPHATIC VESSELS, VASA LYMPHATICA SUPERFICIALIA, OF THE PERINEAL REGION AND THE FEMALE EXTERNAL GENITAL ORGANS.

In order to expose the dorsal lymphatic vessels of the clitoris (both in this specimen and in that depicted in Fig. 1120), the anterior commissure of the vulva was divided and the prepuce of the clitoris removed, so as to lay bare the body of that organ.

Superficial Lymphatic Vessels of the Perineal Region.

APPENDIX TO PART V.

NOTES BY TRANSLATOR

¹¹¹ (Fig. 944, p. 562.) The *ligamentum arteriosum* is a fibrous cord passing from the upper aspect of the right pulmonary artery, a little to the left of the bifurcation of the main trunk, upwards and backwards to the under side of the arch of the aorta. It is the remains of the obliterated foetal *ductus arteriosus*. These structures are sometimes called the *ligament and duct of Botallus*.

¹¹² *Sinus of Valsalva* (*Ibid.*).—The pulmonary artery, like the aorta, exhibits three bulgings at its root, opposite the three *semilunar* or *sigmoid* flaps of the valve guarding its ventricular orifice, known as the *sinuses of Valsalva*. The capacity of these sinuses is greater in the case of the aorta than in the case of the pulmonary artery, and it is the aortic sinuses that are as a rule denoted when the sinuses of Valsalva are spoken of without further qualification. Macalister, indeed, uses the name *sinuses of Valsalva* only in reference to the aorta, and terms the similar structures in the pulmonary artery the *pulmonary sinuses*. Young, on the other hand, in his "Synopsis of Human Anatomy" (U.S.), denotes by the term *sinuses of Valsalva* the *pulmonary sinuses* only, and states that "the *sinus aortici* correspond to the sinuses of Valsalva on the right side;" but this is opposed to the customary usage.

¹¹³ *Auricle and Atrium* (*Ibid.*).—The name *auricle* (*auricula*, little ear) was originally applied to what in England is now called the *auricular appendix*, which has a triangular pointed shape resembling that of the external ear of many mammals. The ante-chambers of the heart as a whole were called the *atria*. In Germany these terms are still used in their primitive significance; but in England the term *auricle* has, by metonymy, come to denote the antechamber as a whole, each *auricle* consisting of two parts: the *atrium* and the *auricular appendix*.

¹¹⁴ *Arteria Coronaria (Cardis) Dextra* (*Ibid.*).—The word *cardis* is added to distinguish the coronary arteries of the heart from the coronary arteries of the lips and the stomach respectively. In the author's nomenclature, however, the distinction is superfluous, since the *coronary arteries of the lips* are by him named *arteria labiales*; and the *coronary artery of the stomach*, *arteria gastrica sinistra*. Usually, moreover, the context is sufficient guide, and the qualification unnecessary. The branches of the *right coronary artery* seen in this figure are the smaller *infundibular* branch, which ramifies over the *conus anterius* of the right ventricle; and the larger *marginal* branch, which runs down the right border to the apex of the heart. (Macalister calls these the *preventricular* and *right marginal* arteries, respectively.) The *smallest cardiac veins* correspond to the former branch, the *anterior cardiac veins* to the latter. The termination of the right coronary artery in *transverse* and *descending* branches is seen in the next figure.

¹¹⁵ *Sinus Venosus and Sulcus Terminalis* (Fig. 945, p. 563).—Quain ("Anatomy," 10th ed., vol. ii., part ii., pp. 356 and 357) writes: "The main part of the auricle, that into which the great veins directly pour their blood, is commonly named *sinus*

venosus, or *atrium*, to distinguish it from the auricular appendix. At the outer and posterior part of the atrium is a slight groove, the *sulcus terminalis* of His, which runs from the front of the termination of the superior to the right of the inferior vena cava, and marks off the portion of the atrium formed by the dilated end of the venous trunks (*saccus reunions* of the embryo) from that belonging to the primitive auricle." While Quain thus identifies the *sinus venosus* with the main cavity of the right auricle, Toldt denotes by the *sinus venarum (cavorum)* only that portion of the cavity lying to the left of the *sulcus terminalis*; the meaning of the English equivalent, *sinus venosus*, should be similarly restricted, as it then denotes that portion of the cavity of the auricle corresponding to the *saccus reunions* of the embryo.

¹¹⁶ (*Ibid.*) The *right coronary artery* is here seen dividing into its terminal *transverse* and *descending* branches. The latter is called by Macalister the *posterior interventricular artery*. For the earlier branches of the right coronary artery, see above, note ¹¹⁴.

¹¹⁷ (*Ibid.*) The *oblique vein of Marshall* runs from the *vestigial fold* (*plica vena cava sinistra*—see Fig. 974, p. 584) over the back of the left auricle to join the coronary sinus. It has no valve over its orifice; and the vein, together with the coronary sinus, is regarded as the vestige of the left superior vena cava of the fetus (see note ¹²² below).

¹¹⁸ **Corona Cordis* (*Ibid.*).—The author describes the heart as divided by the auriculoventricular groove into two parts: the *Herzkrone* (*corona cordis*), consisting of the two auricles with the intrapericardial portions of the great vessels; and the *Herzkegel* ("cone of the heart"—no Latin equivalent is given), consisting of the two ventricles. No English equivalent for these terms is used by Quain or Macalister, the *base of the heart* being not a portion, but one of the surfaces of the organ. .

¹¹⁹ **Umbilical Ring* (Fig. 970, p. 580).—"The small aperture in the anterior abdominal wall by means of which the umbilical vessels pass into the umbilical cord, *annulus umbilicus*, closes during the days immediately following birth" (Von Langer and Toldt, *op. cit.*, p. 406). In England the term *umbilical ring* is seldom employed, the term *umbilicus* denoting that structure as well as the *navel proper*, the permanent remnant of the umbilical cicatrization. The author's terminology, however, is more accurate.

¹²⁰ *Hypogastric Artery* (*Ibid.*).—In England this term denotes the intra-abdominal portion of the umbilical artery of the fetus, which undergoes obliteration after the cessation of the placental circulation, and is represented in the adult by a fibrous cord. The author's *arteria hypogastrica* and *vena hypogastrica*, on the other hand, denote the *internal iliac artery* and *vein* of English anatomists.

¹²¹ *Bulbus Vene Jugularis* (Fig. 972, p. 582).—The author recognises two bulbs of the internal jugular vein, a *superior* and an *inferior*. English anatomists, when speaking of the *bulb* or *sinus* of the *internal jugular vein*, denote the *bulbus superior* of Toldt, only. This dilatation occupies the large posterior compartment of the

jugular foramen (see Fig. 1080, p. 685). According to Langer, however, the bulb does not belong to the internal jugular vein, but is to be regarded as the convexity of a sharp bend formed by the lateral sinus before it terminates in the vein. The *bulbus venae jugularis inferior* of Toldt is the dilated inferior extremity of the internal jugular vein, just above its junction with the subclavian vein.

¹²² *Plica Venae Cavae Sinistrae* (Fig. 974, p. 584).—This is a fold of pericardium, called by Marshall the *vestigial fold*, lying between the left pulmonary artery and the subjacent pulmonary vein. It encloses a vestige of the left superior vena cava (*duct of Cuvier*) of the fetus in the form of a strand of fibrous tissue. From its inferior extremity the *oblique vein of Marshall* runs across the back of the left auricle to open into the coronary sinus. See note ¹¹⁷ above.

¹²³ **Jugular Venous Arch* (*Ibid.*).—This term is not used by Quain or Macalister. It is applied by the author to the *communicating branch* in the *suprasternal space* (*Burns's space*) between the two *anterior jugular veins*, and to those portions of the *anterior jugular veins* below the *communicating branch* which run outwards on each side behind the origin of the sternocleidomastoid muscle to open into the lower end of the *external jugular vein*. A transverse venous arch is thus formed at the root of the neck between the *external jugular veins*.

¹²⁴ (Fig. 975, p. 585).—In the normal development of the great veins, it is this communicating branch, often called the *transverse jugular vein*, which forms the greater part of the definitive left innominate vein.

¹²⁵ *Angulus Venosus* (*Ibid.*).—The name **venous angle*, *right*, and *left*, is given by the author to the junction on the respective sides of the neck of the internal jugular and subclavian veins, normally to form the innominate veins; in the specimen shown in Fig. 975, however, to form the superior vena cava (right and left).

¹²⁶ *Lumbar Arteries* (Fig. 981, p. 592).—These are usually five in number on each side, of which the upper four regularly arise from the aorta, and sometimes the fifth also; but quite often this artery, *arteria lumbalis ima*—the lowest lumbar artery—is, as in the present specimen, a branch of the *middle sacral artery*, or *sacral aorta*.

¹²⁷ (*Ibid.*) The *middle sacral artery* represents the caudal prolongation of the aorta met with in lower mammals, and its lateral branches are homologous with the intercostal and lumbar arteries; hence the name *sacral aorta*, used by Macalister. According to the terminology of this author (*op. cit.*, p. 428), "At the sacrococcygeal joint the artery becomes *middle coccygeal* or *caudal*, and is continued downwards to the tip of the coccyx, where its terminal branch passes outwards to end in the *coccygeal glomerulus*." In Toldt's nomenclature, however, as in that of Quain, the *middle sacral artery* (*arteria sacralis media*) retains its name unchanged up to its termination in the *coccygeal gland* or *glomerulus (glomus coccygeum)*. This structure is shown in Fig. 926, p. 534, Part IV.

¹²⁸ *Sinus Maximus Aortæ* (*Ibid.*).—The space between the dotted lines pointing to the *ascending aorta* and the *arch of the aorta* in Fig. 981 is occupied by the *great sinus of the aorta*, which is not mentioned by the author. The aorta is first of a trefoil shape, owing to the presence of the *sinuses of Valsalva*, then becomes circular, then elliptical, the upper part of the ascending aorta and the commencement of the arch being dilated to form the *great sinus*, the long axis of whose ellipse is directed backwards and to the left. The dilatation varies in size in different bodies, is usually better marked in elderly persons, and

occasionally is not to be detected. Before the *aortic isthmus*, the lumen of the tube again becomes circular. See also Fig. 951, p. 569.

¹²⁹ *Spermatic Artery* (*Ibid.*).—This artery is called by the author *arteria spermatica interna*, to distinguish it from the *arteria spermatica externa*—the *cremasteric artery* of English anatomists.

¹³⁰ *Arteria Hepatica Propria* (Fig. 983, p. 594).—According to the author's nomenclature, the hepatic artery breaks up into a *descending division*, *arteria gastroduodenalis*, and an *ascending division*, *arteria hepatica propria*. The latter gives off the *arteria gastrica dextra* (pyloric artery), and then breaks up into a *ramus sinister* and *ramus dexter* (the left and right hepatic arteries). The term *arteria hepatica propria* has no English equivalent, the artery, from its origin from the celiac axis to its division into right and left hepatic arteries, being called simply the *hepatic artery*.

¹³¹ *Pyloric Artery* (*Ibid.*).—This, the *arteria gastrica dextra* of the author, is called by Macalister the *superior pyloric artery*, to distinguish it from a small branch, usually unnamed, of the *gastro-duodenal artery*, but called by him the *inferior pyloric artery*.

¹³² *Ramus Costalis Lateralis* (Fig. 988, p. 599).—Among the branches of the internal mammary artery, a not unimportant and somewhat common variety is the existence of the *ramus costalis lateralis*; this arises just above the first rib from the internal mammary trunk, runs obliquely downwards and backwards on the inner surface of the wall of the thorax as far as the fifth or sixth rib, and gives offsets in the intercostal spaces which anastomose with branches of the intercostal arteries" (Von Langer and Toldt's "Anatomy," p. 513). Quain (*op. cit.*, vol. ii., p. 429) calls this the *lateral branch* of the internal mammary artery, and states that when present it runs "about midway between the spine and sternum, or somewhat further forward." Macalister calls it the *lateral infracostal branch*, and remarks: "The existence of this vessel must be remembered in paracentesis. I have seen it of enormous size in cases of obliteration of the dorsal aorta from the pressure of an intrathoracic tumour" ("Anatomy," p. 554).

¹³³ *Intra Mammary Branches* (*Ibid.*).—The perforating branches (of the internal mammary artery) of the third, fourth, and fifth spaces in the female give *rami mammarii* to the breast" (Von Langer and Toldt, *op. cit.*, p. 513). In Fig. 988, it is the *anterior perforating branch* of the second right space that furnishes the largest of these mammary branches.

¹³⁴ (*Ibid.*) The origin of the branches of the subclavian artery is so variable that it is difficult to decide which arrangement is to be regarded as normal. Von Langer and Toldt describe the *thyroid axis* as supplying four branches: the *inferior thyroid*, the *ascending cervical*, the *superficial cervical*, and the *suprascapular*. Quain states that the *thyroid axis* divides into "the *inferior* or *ascending thyroid*, the *suprascapular*, and a third branch, which is either the *transverse cervical*, or one of the branches into which that artery, when present, divides—viz., the *superficial cervical*" (the other being the *posterior scapular*). Here, however, we see a trunk, called by Toldt the *superficial cervical*, dividing into the *transverse cervical* and (presumably) the *posterior scapular*. Macalister uses the name *posterior scapular* as synonymous with *transverse cervical*, and regards the common origin of the *superficial cervical* and the *posterior scapular* as one of the most frequent arrangements. (See also note ¹³⁵ below.)

¹³⁵ (*Ibid.*) According to Quain's nomenclature, this trunk would be called the *transverse cervical*, while of the two branches into which it divides, the lower, called here *transversa colli*, is the *superficial cervical*, the upper, apparently, the *posterior scapular*. (See also note ¹³⁴ above and notes ¹⁷² and ²⁰⁸ below.)

¹³⁶ (*Ibid.*) According to the usual English nomenclature, this

artery is still known as the *subscapular* after the *dorsal scapular* branch has been given off. Macalister, however, follows the Continental usage in calling it the *thoracicodorsalis artery*. (See note ²⁰³ below.)

¹³⁷ Outer Mammary Branches (*Ibid.*).—Those shown here are the anterior divisions of the lateral cutaneous (*pectoral*) branches of the intercostal arteries. (For the origin of these branches, see Fig. 978, p. 589.) Other outer mammary branches are normally supplied by the long thoracic artery (see Fig. 1017, p. 628), which for this reason is sometimes called the *external mammary artery*.

¹³⁸ Scrotal and Labial (or Vulval) Arteries, Anterior and Posterior (*Ibid.*).—As these names are not employed by Quain or Macalister, some explanation is required of the manner in which they are applied by the author. The *superficial* or *long perineal artery* (see notes ¹⁴⁷ and ¹⁴⁹ below) terminates by dividing in the anterior half of the perineum (in the triangular intermuscular space beneath Colles's fascia) by dividing into two long slender branches which proceed forwards as the *arteriae scrotales posteriores*, in the male, to supply the posterior half of the scrotum, and as the *arteriae labiales posteriores*, in the female, to supply the hinder part of the vulva. The *superior* and *inferior external pudic arteries* (called by Macalister *superior* or *superficial pubic* and *inferior pubic*, respectively) are distributed chiefly to the front of the scrotum, in the male, and of the vulva, in the female, by means of terminal branches, *arteriae scrotales anteriores* and *arteriae labiales anteriores*, respectively, which anastomose with the posterior scrotal and posterior labial (or vulval) arteries just described. The arteries are accompanied by veins similarly named by Toldt, the *posterior scrotal* (or *labial*) veins being tributaries of the *superficial* or *long perineal vein*; and the *anterior scrotal* (or *labial*) veins opening into the *external pudic veins*.

¹³⁹ Internal Pudic Artery (Fig. 989, p. 600).—This is called by Macalister the *pudic artery* without qualification, since the small branches of the epigastric artery commonly denominated *external pudic* are by him termed the *pubic arteries* (see note ¹³⁸ above).

¹⁴⁰ Pelvic Diaphragm (*Ibid.*).—As used by English anatomists, this denotes the *levator ani* and the *coccygeus* or *levator coccygis* muscles; the author, however, includes under this designation, in addition to the muscles themselves, the *rectal fascia* covering their upper surface (*fascia diaphragmatis pelvis superior*) and the *anal fascia* covering their lower surface (*fascia diaphragmatis pelvis inferior*). See Part IV. of this work, Fig. 881, p. 513.

¹⁴¹ Arteria Penis (*Ibid.*).—The name of *artery of the penis* is given by the author to the distal portion of the *internal pudic artery* of English anatomists, after it has left the ischiorectal fossa, and before it bifurcates into the *artery of the corpus cavernosum* and the *dorsal artery of the penis*. The *artery of the bulb* is derived from this portion of the trunk.

¹⁴² Diaphragma Urogenitale (*Ibid.*).—The name of *urogenital diaphragm* is given by the author to the *triangular ligament of the urethra* of English anatomists, including the muscle contained between the two layers of that ligament—the *constrictor* or *compressor urethrae*. (See Appendix to Part IV. of this work, note ²⁰.)

¹⁴³ Inferior Vesical and Middle Hemorrhoidal Arteries (*Ibid.*).—Quain gives *vesicoprostatic artery* as an alternative name for the *inferior vesical artery* in the male. A slender offset is seen in Fig. 989 passing to the rectum from the lower part of this vessel, and no other branch is shown in the figure representing the *middle hemorrhoidal* or *middle rectal artery*, which is, however, usually much larger, and may be derived either from the *inferior vesical* or from the *internal pudic artery*.

¹⁴⁴ Inferior Vesical Artery (Fig. 990, p. 601).—Quain gives *vesicoprostatic artery* as an alternative name for this artery in the male.

¹⁴⁵ Alcock's Canal (*Ibid.*).—In the ischiorectal fossa the internal pudic artery runs in a canal in the substance of the obturator fascia, known as *Alcock's canal*. In Fig. 990 this canal has been opened to show the artery, except for a distance of about a quarter of an inch in front. For the nomenclature of the internal pudic artery, see note ¹³⁹ above.

¹⁴⁶ (*Ibid.*) Quain gives *external hemorrhoidal* as an alternative name for this artery; Macalister calls it the *anal artery*.

¹⁴⁷ Arteria Perinei (*Ibid.*).—English anatomists usually describe two *perineal* branches of the *internal pudic artery*: the *superficial* or *long perineal artery*, which arises near the front of the ischiorectal fossa, passes either superficial to or beneath the *transversus perinei* (*superficialis*) muscle, and runs forward in the triangular intermuscular space beneath Colles's fascia, to terminate in the *posterior scrotal* or *posterior labial* branches and anastomose with the *anterior scrotal* or *labial* offsets of the *external pudic* branches of the *femoral artery* (see note ¹³⁸ above); and the *transverse perineal artery*, generally arising in common with the preceding, but sometimes a distinct branch, which runs inwards towards the central point of the perineum, and supplies the parts between the anus and the bulb of the urethra. Toldt calls these two branches indifferently the *arteriae perinei*.

¹⁴⁸ Ligamentum Umbilicale Laterale (*Ibid.*).—After the cessation of the placental circulation at birth, the hypogastric artery becomes impervious from the side of the bladder up to the umbilicus, and is converted into a fibrous cord. In England this is usually spoken of as the *obliterated hypogastric artery*, but the author calls it the **external umbilical ligament* (in contradistinction to the **median umbilical ligament* or *uvrachus*). The fold of peritoneum which covers this structure as it runs along the posterior surface of the anterior abdominal wall is called by the author *plica umbilicalis lateralis*, the *external umbilical fold*; but in England it is more often known by the name of the *hypogastric fold*. See Fig. 635, p. 386, and Fig. 636, p. 387, in Part III. of this work.

¹⁴⁹ *Perineal Artery (Fig. 991, p. 602).—The short trunk called by the author *arteria perinei* is seen to divide almost immediately into a posterior branch, the *transverse perineal artery*, and an anterior branch, the *superficial* or *long perineal artery*. See note ¹⁴⁷ above.

¹⁵⁰ (*Ibid.*) Quain gives *external hemorrhoidal* as an alternative name for this artery; Macalister calls it the *anal artery*.

¹⁵¹ (*Ibid.*) The *superficial layer* of the *obturator fascia* where it covers the *internal pudic artery* has been removed throughout the whole length of *Alcock's canal*. See note ¹⁴⁵ above.

¹⁵² Urethral Artery (Fig. 992, p. 603).—This may arise (as here) from the *artery of the bulb*, or separately from the trunk of the *internal pudic artery*.

¹⁵³ M. Transversus Perinei Profundus (*Ibid.*).—For the nomenclature of this muscle, see Appendix to Part IV., note ¹⁰¹.

¹⁵⁴ Arteria Cruris Penis (*Ibid.*).—In addition to the principal artery of the *corpus cavernosum* (*arteria profunda penis*), small offsets, usually two or three in number, pass to the crus from the trunk of the *internal pudic artery*, just behind its terminal bifurcation. These are left unnamed in most English works on anatomy, but may be called *arteries of the crus penis*.

¹⁵⁵ (Fig. 993, p. 604.) Just behind the *superficial* or *long perineal artery*, running transversely inwards to the space between the anus and the vaginal orifice (*i.e.*, the *obstetrical perineum*) is the *transverse perineal artery* of English anatomists. (See note ¹⁴⁷ above.)

¹⁵⁶ Arteria Clitoridis (*Ibid.*).—Just as, in the male, the *internal pudic artery* of English anatomists becomes, in the author's

nomenclature, the *artery of the penis* as soon as it leaves the ischiorectal fossa (see note ¹³⁴ above), so, in the female, it becomes the *artery of the clitoris*, which gives off the *artery of the bulb* (*arteria bulbis vestibuli*)—see Fig. 994, p. 605, and Fig. 996, p. 607) to the vaginal bulb or bulb of the vestibule, and terminates by dividing into the *artery of the corpus cavernosum of the clitoris* (*arteria profunda clitoridis*) and the *dorsal artery of the clitoris* (*arteria dorsalis clitoridis*).

¹³⁷ *Superficial or Long Perineal Artery* (Fig. 994, p. 605).—In the female, this artery is considerably larger than in the male, as will be seen by a comparison of Fig. 994, p. 605, with Fig. 991, p. 602. The foremost of the branches indicated by the author in Fig. 994 as *arteriae hemorroidales inferiores* represents the *transverse perineal artery* of English anatomists—see notes ¹³⁷ and ¹³⁹ above.

¹³⁸ (*Ibid.*) Represented here by several twigs, instead of the single stem normally given to the anus by the internal pudic artery, and called by Macalister the *anal artery*. But see also the second sentence in note ¹³⁷ above.

¹³⁹ *Bulbus Vestibuli* (*Ibid.*).—Regarding the nomenclature of this structure, see Appendix to Part IV., note ⁹¹.

¹⁴⁰ *Vaginal Arteries* (Fig. 995, p. 606).—The arrangement of these in this specimen is worthy of note. The *uterine artery*, after crossing beneath the ureter and then running parallel with it for a considerable distance, gives off two branches which pass in front and behind the ureter, respectively, and then turn upwards to unite again into a considerable branch of the *internal pudic artery*. From the two arches thus formed, numerous small offsets are given to the vagina and the lower part of the bladder. For an account of the normal arrangement of the *vaginal arteries*, see note ¹⁴³ below.

¹⁴¹ (*Ibid.*) The *left iliolumbar artery* in this specimen is very much smaller than usual, and arises from the common iliac artery, instead of, as is normally the case, from the internal iliac prior to its breaking up into anterior and posterior divisions.

¹⁴² *Arteria Vesicalis* (*Ibid.*).—The arteries called *vesical* in Fig. 995 are the terminal offsets merely, not the *vesical arteries* proper. No *superior vesical artery* is depicted in this specimen; and the *inferior vesical artery* (or *vesicovaginal artery*) is represented by the branch of the *internal pudic artery* which contributes to form the arterial arches mentioned in note ¹⁴⁰ above.

¹⁴³ *Vaginal Arteries* (Fig. 997, p. 608).—The upper part of the vagina (with the cervix uteri) is supplied by a special branch of the *uterine artery*, and it is this branch which in the left side of Fig. 997 is by the author denominated the *vaginal artery*. The lower part of the vagina is separately supplied. In the right side of Fig. 997 the author depicts *vaginal arteries* for this region arising from the *internal pudic artery*; in Fig. 995, p. 606, a somewhat similar arrangement is shown; while in Fig. 1074, p. 677, a larger branch for the lower part of the vagina arises in common with the *internal pudic*. According to Quain ("Anatomy," 10th ed., vol. ii., part ii., p. 474), "the *vaginal artery* (*vesicovaginal*) in the female corresponds to the *inferior vesical artery* (*vesicoprostatic*) in the male. Arising from the *anterior division* of the *internal iliac*, or frequently from the *uterine artery*, it descends and ramifies upon the vagina, sending at the same time offsets to the lower part of the bladder, to the bulb of the vestibule, and to the contiguous part of the rectum. It anastomoses behind the vagina with the corresponding artery of the opposite side." The fact is that the vagina is normally supplied with blood from both the sources mentioned, the branch from the *uterine* (which might be termed the *superior vaginal artery*) and the branch from the *inferior vesical artery* (which might be termed the *inferior vaginal artery*) varying inversely with one

another in size. In Fig. 997 is shown a slender vertically disposed artery occupying the median line of the posterior surface of the vagina; this is often much larger than in the specimen here figured, being supplied by offsets from both the *superior* and the *inferior vaginal arteries*, and is termed the *azygous artery of the vagina*. It is well shown in a plate by Hyrtl, reproduced as plate vi. of Hart and Barbour's "Gynecology," 3rd ed., 1886, facing p. 68.

¹⁴⁴ (Fig. 998, p. 610.) The *ophthalmic artery* terminates by dividing into the *frontal* and *nasal* branches. Macalister follows the Continental terminology in speaking of the latter as the *arteria dorsalis nasi*.

¹⁴⁵ *Angular Artery* (*Ibid.*).—The *facial artery* is described by English anatomists as terminating usually by division into the *lateral nasal* and *angular arteries*, the latter being the slender twig which inosculates at the inner side of the orbit with the *nasal branch* of the *ophthalmic artery*. Toldt, however, gives the name of *arteria angularis* to the *facial* as soon as it has given off the *coronary artery of the upper lip*, and the *lateral nasal artery* is not mentioned by him. The last-named artery in the present specimen is represented by two or three slender twigs seen ramifying on the side of the nose.

¹⁴⁶ *Facial Artery* (*Ibid.*).—Quain gives *external maxillary*, and Macalister *external mandibular*, as an alternative name for this artery; but it is so rarely in England called anything but the *facial artery* that I have not thought it necessary to mention these synonyms in the text. Conversely, the *internal maxillary* is sometimes, though rarely, spoken of as the *deep facial artery*.

¹⁴⁷ (*Ibid.*) The *hyoid branch* of the *lingual artery* usually runs along the upper border of the *hyoid bone* (in the figure, however, along the outer side of the great cornu), and is called by Macalister the *suprahyoidian artery*.

¹⁴⁸ (*Ibid.*) Very often called the *temporal artery*, without qualification. It has, however, to be distinguished from the *anterior* and *posterior deep temporal branches* of the *internal maxillary artery*, and from its own *middle deep temporal* (*middle temporal*) branch.

¹⁴⁹ *Sternocleidomastoid Artery* (*Ibid.*).—This is described by Von Langer and Toldt as a special branch arising from the posterior side of the *external carotid artery* above the *hyoid bone*, and arching downwards and outwards to enter the inner side of the *sternocleidomastoid muscle*. It is described also by Macalister, but not by Quain. It varies inversely in size with the *sternocleidomastoid branches* of the *occipital* and *superior thyroid arteries*, and is sometimes absent.

¹⁵⁰ *Acromial Rete* (*Ibid.*).—This name is sometimes given to the arterial network formed on the upper surface of the acromion by anastomosing branches of the *acromiothoracic*, *suprascapular*, and *posterior circumflex arteries*. I may add that the word *rete* in this section of the "Atlas" is used without qualification only in speaking of *arterial retia*. The *venous retia* are always distinguished by the qualifying adjective.

¹⁵¹ *Arteria Labialis Inferior* (Fig. 999, p. 611).—Macalister describes the *inferior labial artery* as dividing into two branches: an upper, the *inferior coronary artery*, which runs near the free margin of the lower lip; and a lower, the *superficial mental artery*. Quain mentions the *inferior labial artery* and the *coronary artery of the lower lip* as being sometimes distinct branches of the *facial artery*, but sometimes arising in common from that artery.

¹⁵² *Arteria Transversa Colli* (*Ibid.*).—Fig. 999 shows what the author describes as the normal distribution of the branches of the *subclavian artery*, in which the *superficial cervical artery* arises from the *thyroid axis*, while the *transverse cervical artery*, arising

separately from the *subclavian* trunk, terminates by dividing into *ascending* and *descending branches*, the former running upwards among the muscles of the neck to anastomose with the *cervical* or *descending branch of the occipital artery* (see note¹⁰, p. 611), the latter becoming the *posterior scapular artery*. In Macalister's terminology the *ramus ascendens* is called the *cervical branch of the transverse cervical* or *posterior scapular artery*. The artery in question (*ramus ascendens*) has no regular place in Quain's terminology, for that author describes a *transverse cervical artery* from the *thyroid axis*, dividing into *superficial cervical* and *posterior scapular arteries*, as the most usual arrangement. In his account of the *varieties*, however, of the branches of the *subclavian artery*, Quain states that "The transverse cervical branch of the thyroid axis not infrequently consists solely of the superficial cervical artery; and it often happens that the vessel derived from the thyroid axis is very small, and represents only in part the superficial cervical artery, a large vessel being given off from the second or third part of the *subclavian*, and dividing near the *levator anguli scapulae* into two branches, of which one ascends and represents the larger portion of the superficial cervical artery, while the other forms the posterior scapular" (*op. cit.*, vol. ii., p. 427). In this variety we have the arrangement described by Toldt as *normal*. See also notes¹²⁴ and¹²⁵ above and note⁵ to p. 629.

¹²⁴ *Cricothyroid Artery* (Fig. 1000, p. 612).—Called by Macalister the *inferior laryngeal branch of the superior thyroid artery*. This artery is endangered in the operation of laryngotomy.

¹²⁵ *Superior Phrenic Arteries* (Ibid.).—Several branches to the upper surface of the diaphragm are supplied by the *internal mammary artery*. I. The *comes nervi phrenici* of English authors, called by Toldt *arteria pericardiophrenica*, shown here on both sides, accompanies the phrenic nerve, and supplies *pericardial* as well as *phrenic* branches. Quain gives *superior phrenic* as an alternative name for this artery. II. The *internal mammary* terminates by dividing into *superior epigastric* and *musculophrenic* branches, the latter giving off the three lowermost *anterior intercostal arteries* as well as supplying the diaphragm. III. On the right side of Fig. 1000, the author shows another branch supplied to the diaphragm by the *internal mammary artery*, and this he names *arteria phrenica superior*.

¹²⁶ *Thymic Artery* (Ibid.).—This small offset, which in the adult supplies the remains of the thymus gland, is one of the *anterior mediastinal branches of the internal mammary artery*.

¹²⁷ *Posterior Meningeal Artery* (Fig. 1001, p. 613).—This name is, in England, more often given to the *meningeal branch of the vertebral artery* (see Fig. 1003, p. 615, and Fig. 1007, p. 619) than to the *meningeal branch of the ascending pharyngeal artery*. The name is, however, equally applicable to both; and, in fact, the *ascending pharyngeal* usually supplies the dura mater with a larger vessel than that derived from the *vertebral artery*.

¹²⁸ *Costocervical Axis* (Ibid.).—This name for the trunk by which the *superior intercostal* and the *deep cervical arteries* usually arise in common from the second part of the *subclavian artery* is used by Macalister, but not by Quain.

¹²⁹ **Deep Branch of the Ascending Cervical Artery* (Fig. 1003, p. 615).—"A very variable offset of the *ascending cervical artery*, known as the **ramus profundus*, passes backwards to the deep muscles of the back of the neck" (Von Langer and Toldt, *op. cit.*, p. 512). Neither Quain nor Macalister distinguishes this branch by name from the other muscular offsets of the *ascending cervical artery*.

¹³⁰ *Lachrymal Gland* (Fig. 1004, p. 616).—Regarding the distinction made by the author, and by some English anatomists

also, between the two portions of this gland, named respectively *superior* and *inferior lachrymal gland*, see note¹ to p. 911 in Part VI. of this work.

¹³⁰ **Arteria Labialis Inferior* (Ibid.).—The upper of the two vessels denoted in Fig. 1004 by the name of *inferior labial artery* is called by Quain the *coronary artery of the lower lip*; and by Macalister, the *inferior coronary artery*. The lower of the two is itself the *inferior labial artery* in Quain's nomenclature, whilst Macalister calls it the *superficial mental artery*. See note¹²¹ above.

¹³¹ *Rami Gingivales Superiores* (Fig. 1005, p. 617).—As is well shown in the figure, the *superior gingival branches* are offsets of an anastomotic arch lying below the malar process on the zygomatic and anterior or facial surfaces of the *superior maxillary bone*, this arch being formed behind by the *posterior (superior) dental (or alveolar) artery*, and in front by a branch of the *infra-orbital artery*.

¹³² *Ramus Tonsillaris* (Ibid.).—In this preparation (Figs. 1005 and 1006) and in the two next following (Figs. 1007 and 1008), the *inferior* or *ascending palatine artery* furnishes a *tonsillar branch*. Sometimes, however, this branch is wanting, and a separate *tonsillar artery* arises from the *facial trunk*.

¹³³ *Arteria Tympanica* (Ibid.).—Four *tympanic arteries* are described in Von Langer and Toldt's "Anatomy": The *anterior tympanic*, derived from the *deep auricular branch of the internal maxillary artery*; the *posterior tympanic*, a branch of the *stylo-mastoid artery*, which is itself derived from the *posterior auricular artery*; the *superior tympanic*, derived from the *middle or great meningeal artery*; and the *inferior tympanic*, derived from the *ascending pharyngeal artery*. By Quain these are termed the *tympanic branches* (without further qualification) of their respective trunks. The *petrosal* or *Fallopian branch of the middle or great meningeal* and the *tympanic branch* furnished by the *internal carotid artery* in the *carotid canal* also supply the *tympanum*. By their anastomoses the *tympanic vessels* form a vascular circle round the margin of the *membrana tympani*. The *anterior tympanic artery* is seen on p. 617, the *superior tympanic artery* on p. 621.

¹³⁴ *Arteria Ethmoidalis et Arteria Nasales Anteriores Septi* (Fig. 1006, p. 618).—These small branches of the *ophthalmic artery* are variously named in England. *Internal nasal* is an occasional synonym for the *anterior ethmoidal artery*. Quain, in the section on *Angeiology*, calls the *nasal branch* of the *anterior ethmoidal* the *anterior nasal artery*; in the section on the *Organs of the Senses*, however, the branches shown in Fig. 1006 ramifying on the *septum* are termed by him the *septal branches* of the *anterior and posterior ethmoidal arteries*.

¹³⁵ *Arteria Sphenopalatina* (Ibid.).—The *sphenopalatina* or *nasal artery*, a branch of the *third (terminal) part of the internal maxillary artery* in the *sphenomaxillary fossa* (its origin is shown in Figs. 1005 and 1007), enters the *nasal fossa* through the *sphenopalatine foramen*. The *pterygopalatine* or *pterygopharyngeal artery*, which passes backwards through the canal of the same name (*canalis pharyngeus*, according to Toldt) to supply the *fornix of the pharynx* and the *sphenoidal sinus*, is often a branch of the *sphenopalatine artery*, but is sometimes separately derived from the *internal maxillary trunk*. Macalister further describes a *descending pharyngeal branch* of the *sphenopalatine artery*, but this is mentioned neither by Quain nor by Von Langer and Toldt. The *sphenopalatine artery* is distributed chiefly to the *nasal fossae*, its branches being called by Von Langer and Toldt *arteriae nasales posteriores, laterales, et septi*, and by Macalister the *posterior nasal arteries*. "One long branch, the *nasopalatine artery* or *artery of the septum*, runs downwards and forwards in the groove on

the vomer, and ends in a small vessel which enters the incisor foramen to communicate with the descending palatine artery" (Quain, *op. cit.*, vol. ii, p. 406). According to Macalister's nomenclature, the *nasopalatine artery* divides into *superior* and *inferior* branches, the latter being that which passes through the incisor foramen. Von Langer and Toldt regard the *arteria nasopalatina* as the terminal branch of the *arteria palatina descendens*, which ascends through the incisor foramen (canal of Stensen) to anastomose with one of the *arteriae nasales* previously mentioned (see note ¹⁸³ below). These are merely two different ways of regarding the same anatomical data.

¹⁸² *Rami Dorsales Linguae* (*Ibid.*).—The *lingual artery* may supply a single *dorsal artery* of the tongue on either side, or (as here) several *dorsal lingual branches*.

¹⁸³ *Internal Carotid Artery* (*Ibid.*).—Two branches are given off from the second or intra-osseous portion of this vessel: (1) the *tympanic branch* (*ramus caroticotympanicus*), which passes through one of the carotidotympanic canaliculi and anastomoses with the other *tympanic arteries* (see note ¹⁸³ above); and (2) the *Vidian branch* (not shown in Fig. 1006), which anastomoses with the *Vidian branch* (*arteria canalis pterygoidei Vidi*) of the internal maxillary artery.

¹⁸⁴ *Arteria Palatina Descendens*, **Arteria Palatina Major*, et **Arteria Palatina Minores* (Fig. 1007, p. 619).—The *superior* or *descending palatine artery*, arising in the spheno-maxillary fossa from the third (terminal) portion of the internal maxillary artery (see Fig. 1005, p. 617), sometimes gives off the *Vidian artery*, which may, however, arise separately from the *internal maxillary trunk*; it also gives small branches which descend in the posterior and external accessory palatine canals to supply the soft palate and the tonsil—these, called by Toldt **arteria palatina minores*, are left unnamed by Quain and Macalister, but may be termed the **accessory palatine arteries*; descending in the posterior palatine or palatomaxillary canal, the *superior* or *descending palatine artery* emerges on the inferior surface of the hard palate accompanied by the large palatine nerve, and runs forward in one of the **palatine grooves*; in this situation its name is unchanged in the English nomenclature; the author, however, now calls it **arteria palatina major*, the **great palatine artery*; the vessel terminates, as described in note ¹⁸⁵ above, by ascending through Stensen's canal to anastomose with the *nasopalatine artery* or *artery of the septum*.

¹⁸⁵ *Rami Gingivales Inferiores* (*Ibid.*).—The *inferior gingival branches* are derived partly from the *subtongue artery*, partly, also, from the *submental artery*, and from the *mylohyoid branch* of the *inferior dental* (or *alveolar*) *artery*.

¹⁸⁶ *Meningeal Branch of the Vertebral Artery* (*Ibid.*).—It is to this vessel that the name of *posterior meningeal artery* is commonly applied by English anatomists. The small vessel seen emerging from the jugular foramen, to which the name *arteria meningea posterior* is given by the author, is an offset of the *ascending pharyngeal artery*. (See also note ¹⁷⁸ above.)

¹⁸⁷ **Arcus Raninus* (Fig. 1008, p. 620).—"Near the tip of the tongue the two *ranine arteries* communicate by means of a small loop (Krause), but with this exception the right and left arteries do not form other than capillary anastomoses" (Quain, *op. cit.*, vol. ii, p. 306).

¹⁸⁸ *Rami Musculares Arteria Ophthalmica* (Fig. 1010, p. 621).—Some of these are named by English anatomists. Quain writes: "Small muscular offsets arise at uncertain intervals from the trunk of the *ophthalmic artery*, as well as from the *lachrymal* and *supra-orbital branches*; in addition to these there are two more regular branches, an *external*, which is distributed to the upper

and outer muscles of the orbit, and an *internal*, larger and more constant, to the lower and inner muscles" (*op. cit.*, p. 409). Macalister calls these branches *superior* and *inferior muscular*, respectively, and describes also a special *muscular artery to the external rectus*.

¹⁸⁹ *Ramus Orbitalis Arteria Meningea Media* (*Var.*) (*Ibid.*).—There is normally a small communicating branch, called by Quain the *orbital branch of the middle or great meningeal artery*, passing from the trunk of this vessel or from its anterior division through the outer end of the sphenoidal fissure (or through a special aperture in the great wing of the sphenoid bone) to join a branch of the *lachrymal artery*, and the *ramus orbitalis* here figured is a larger homologue of this vessel. Macalister names it the *lachrymal branch of the middle meningeal artery*, and in one place (*op. cit.*, p. 582) describes it as supplying the lachrymal gland; in another (p. 657), he states that the *lachrymal artery* (*ex arteria ophthalmica*) "receives a large branch through the sphenoidal fissure from the *middle meningeal artery*, this branch varying inversely in size with the *lachrymal artery* itself."

¹⁹⁰ *Arteria Tympanica Superior* (*Ibid.*).—Usually known in England by the name of the *tympanic branch of the middle or great meningeal artery*. (See note ¹⁸⁴ above.)

¹⁹¹ *Arteria Cerebelli* (Fig. 1011; p. 622).—Some confusion is liable to arise regarding the nomenclature of the *cerebellar arteries*, and for this reason the use of double names is better avoided, and I adhere to those employed by Macalister. These vessels are three in number, two being offsets of the *basilar artery*, the third being derived from the *vertebral*: (1) *Arteria cerebelli inferior anterior*, the *anterior cerebellar artery* (Macalister); this arises from the posterior extremity of the *basilar artery*; Quain calls it the *anterior (inferior) cerebellar artery*, Ellis the *anterior cerebellar artery*. (2) *Arteria cerebelli superior*, the *superior cerebellar artery* (Macalister). This arises from the anterior extremity of the *basilar artery*, being commonly described as one of the terminal branches of that vessel; Quain and Ellis also call this the *superior cerebellar artery*. (3) *Arteria cerebelli inferior posterior*, the *posterior cerebellar artery* (Macalister); this arises from the *vertebral artery*; Quain calls it the *(posterior) inferior cerebellar artery*, Ellis the *inferior cerebellar artery*.

¹⁹² *Oculum (Fig. 1012, p. 623)*.—This name is given to the portions of the frontal and parietal lobes lying between the ascending and posterior branches of the fissure of Sylvius, and covering the upper part of the central lobe or Island of Reil. It is sometimes called more fully the *oculum of the insula*; sometimes, also, the *oculum of Burdach*.

¹⁹³ **Vena Mediana Colli* (Figs. 1015, 1016, p. 626).—"When both *anterior jugular veins* are absent, or very small, we find in the median line the **median vein of the neck*, the radicles of which are beneath the chin, and which runs in the superficial fascia towards the *suprasternal notch* (or *fossa jugularis*); in this region it usually bifurcates into right and left branches, which enter the **jugular venous arch* in the *spatium interaenerviticum suprasternale* [*suprasternal space*, or *Burns's space*—see note ¹²³ above], or the lower part of the *median vein of the neck* may itself form part of the **jugular venous arch*" (Von Langer and Toldt, *op. cit.*, p. 542). Quain states that the *anterior jugular vein* varies greatly in size, and that the right and left veins may sometimes be united into a single median vessel for a part of their length. Macalister uses the term *vena mediana collis* as a synonym for the *anterior jugular vein*.

¹⁹⁴ (Fig. 1015, p. 626).—Called by Macalister *nervus descendens cervicus*. This branch is, however, still very commonly known by the old name of *descendens noni*, the *hypoglossal nerve*, the *twelfth*

cranial nerve of Soemmerring, being the ninth cranial nerve, *nervus nodus*, in the enumeration of Willis.

¹⁹⁹ *N. Cervicis Descendens* (*Ibid.*).—This name is given here, but not in the section on Neurology, nor in Von Langer and Toldt's "Anatomy," to one of the communicating branches of the cervical plexus which join the descending cervical branch of the hypoglossal nerve (see note ¹⁹⁸ above) to form the *ansa hypoglossi*.

²⁰⁰ *Sinus Vertebralis Longitudinalis* (*Ibid.*).—"A double vertically disposed series of anastomoses also belongs to the internal vertebral venous plexuses. These are situate on the posterior surfaces of the bodies of the vertebrae, and connect the adjoining vertebral venous plexuses. Taken as a whole they constitute the so-called *longitudinal vertebral sinuses, which extend as two parallel vascular chains on either side of the posterior common ligament right down to the coccyx" (Von Langer and Toldt, *op. cit.*, p. 540). Quain calls them the *anterior longitudinal spinal veins*; and this author describes also two *posterior longitudinal spinal veins*, between the dura mater and the posterior wall of the spinal canal. They are, however, "often much broken up in parts of their course." The term **longitudinal vertebral sinus* is not current in England, but Macalister, writing of the *internal vertebral venous plexuses*, remarks: "The whole system is extra-thecal, but within the periosteum of the canal, and therefore on the same horizon as the system of cerebral sinuses" ("Anatomy," p. 260).

²⁰¹ *Vene Intervertebralis* (*Fig. 1016*, p. 626).—The *intervertebral veins*, in the author's terminology, are those that drain the blood from the vertebral venous plexuses through the intervertebral foramina, passing, according to the region in which they issue, to the vertebral veins, the posterior branches of the intercostal and lumbar veins, and the lateral sacral veins. See also note ²⁰⁵ below.

²⁰² *Layers of the Deep Cervical Fascia* (*Ibid.*).—Macalister enumerates these as follows: (1) The *suprasternomastoid layer*; (2) the *sternomastoid layer*, which splits into two at the outer side of the great vessels of the neck, thus forming the *carotid sheath*, the posterior layer of this sheath being continuous with (3) the *post-pharyngeal fascia*, which passes from side to side across the median line behind the constrictors of the pharynx; (4) the *pretracheal fascia* passes from side to side from the front of the carotid sheath anterior to the trachea, and between this layer and the suprasternomastoid or superficial layer is *Burns's space* (see note ¹⁹⁷ above), while below the pretracheal fascia passes into the thorax to join the pericardium as *Godman's fascia*; (5) the deepest transverse layer is the *prevertebral fascia* posterior to the post-pharyngeal fascia, but not distinguished from it in *Figs. 1015* and *1016*.

²⁰³ *Subscapular Artery* (*Fig. 1017*, p. 628).—According to Quain's nomenclature, which is that usually accepted in England, the *subscapular artery* gives off a large *dorsal* branch, the *dorsal scapular artery*, *arteria dorsalis scapulae*; and its downward continuation, often smaller than the dorsal branch, still receives the name of *subscapular artery*. According to Toldt, however, the *arteria subscapularis*, after giving off the *arteria circumflexa scapulae* (*i.e.*, the dorsal branch aforesaid), becomes the *arteria thoracodorsalis*; and Macalister uses a similar terminology, describing the *long subscapular artery* as dividing into *dorsalis scapulae* and *thoracodorsalis*. He distinguishes the main trunk as the *long subscapular*, because one or two *short subscapular* branches (*rami subscapulares* according to Toldt) are given off by the axillary artery directly to the *subscapularis muscle*.

²⁰⁴ (*Ibid.*) *Arteria thoracalis lateralis*, the *long thoracic artery*, supplies *rami mammarii*, *external mammary branches*, larger in the

female than in the male, and especially large during lactation. The *long thoracic* itself is sometimes called the *external mammary artery*.

²⁰⁵ *Parts of the Subclavian Artery* (*Ibid.*).—Von Langer and Toldt divide the subclavian artery into two parts only: the *thoracic* part extends from the commencement of the vessel to its emergence from the *scalene space (see note ¹ to p. 277 in Part III. of this work); the *cervical* part, comprising the remainder of the artery, between the outer border of the scalenus anticus muscle and the lower border of the subclavius muscle, lies deep in the (greater) supraclavicular fossa. English authorities divide the vessel into three parts, *first*, *second*, and *third* (Macalister giving as alternative names, *pectoral*, *intervascular*, and *cervical* stages). The *first* part, internal to the scalenus anticus muscle, and the *second* part, behind that muscle, thus correspond to the *thoracic* part of Von Langer and Toldt; while the *third* or *cervical* part of English authors is nearly identical with the *cervical* part of Von Langer and Toldt, the only difference being that by the former the *outer border of the first rib*, by the latter the *lower border of the subclavius muscle*, is regarded as marking the boundary between the *subclavian* and the *axillary artery*.

²⁰⁶ *Branches of the Axillary Artery* (*Fig. 1018*, p. 629).—These are somewhat variable in their number and distribution, and they are very variously named by different authorities. By Von Langer and Toldt they are arranged in four groups, distributed respectively to the *anterior*, the *posterior*, the *internal*, and the *external* wall of the axilla. I. *Branches to the Anterior Wall of the Axilla*: 1. *Arteria thoraco-acromialis*, usually known in England as the *acromiothoracic artery*, sometimes called the *acromial thoracic*, and by Macalister termed the *thoraco-acromial artery*; the named offsets of this vessel are four in number: *ramus subclavius*, the *clavicular branch*; *ramus pectoralis*, the *pectoral* or *thoracic* branch (there may be two or more of these, and among them in females is often an *external mammary branch*); *ramus acromialis*, the *acromial branch*, to the *acromial rete* (see note ¹⁷⁰ above); and *ramus deltoides*, the *descending or humeral branch*, which runs downwards beside the cephalic vein in the deltoideoperitoneal groove (see Part III., p. 282, *Fig. 523*). 2. *Arteria thoracalis suprema*, the *superior* or *short thoracic artery*, described by Von Langer and Toldt as an "occasional" branch; this vessel is often derived from the *acromiothoracic artery*—an arrangement described by some anatomists as normal, the *acromiothoracic* trunk being then often called the *thoracic axis*, especially when the remaining *thoracic branch* (presently to be described), the *long thoracic artery*, has the same origin. II. *Branches to the Posterior Wall of the Axilla*: 3. *Arteria subscapularis*, the *subscapular artery*, called by Macalister the *long subscapular artery* (see note ²⁰³ above): the principal branch of this is the *arteria circumflexa scapulae*, the *dorsal* branch of the *subscapular artery*, *dorsalis scapulae*, or *dorsal scapular artery* of English authors, which passes backwards through the *internal axillary space* (see Part III., p. 312, *Fig. 599*, and note ¹ to same page) or *subscapular triangle* (Macalister) to reach the infraspinous fossa; the *dorsal scapular artery* gives to the *subscapular fossa* what are variously described as *ventral branches* (Quain), *deep subscapular branch* (Macalister), or *infrascapular offset* (Ellis), and among the terminal offsets of this branch (or these branches) are the *ventral nutrient artery of the scapula* and the *superior articular artery of the shoulder*; in addition, the *dorsalis scapulae* gives a *descending branch* (called by Young the *median branch*) which runs in the groove between the origins of the *teres minor* and *teres major* muscles to the inferior angle of the scapula: the continuation of the *subscapular artery* (commonly smaller than the *dorsal branch*) is renamed by Toldt *arteria thoracodorsalis*, and Macalister

follows the Continental usage in terming it the *thoracodorsalis artery*, but by most English anatomists it is still called *subscapular artery* in this part of its course; it terminates in muscular branches to the latissimus dorsi, serratus magnus, teres major, and teres minor muscles. III. Branches to the Internal Wall of the Axilla: 4. *Arteria thoracalis lateralis*, the long thoracic (or external mammary artery), which gives muscular branches to the serratus magnus, pectoralis major, and pectoralis minor muscle, and *rami mammarii*, external mammary branches (see note ²⁰⁴ above). IV. Branches to the External Wall of the Axilla: 5. *Arteria circumflexa humeri anterior*, the anterior circumflex artery (of the arm). 6. *Arteria circumflexa humeri posterior*, the posterior circumflex artery (of the arm), which runs backwards through the external axillary space (see Part III., p. 312, Fig. 589, and note ¹ to same page) or quadrilateral space (Macalister), and gives numerous offsets, named by Macalister as follows: *Ascending branch*, to the teres minor muscle; *descending branch*, to the long head of the triceps; *nutrient branch*, to the great tuberosity of the humerus; *posterior articular artery*, to the shoulder-joint; *axiomial branch*, to the *rete axiomiale* (see note ¹⁷⁰ above); and an anastomotic branch to the *superior profunda branch* of the brachial artery. Fifth Group. Branches not enumerated by Von Langer and Toldt: 7. The alar thoracic artery to the lymphatic glands and fatty tissue of the axilla; this is a very variable branch, and may arise (a) direct from the axillary trunk, (b) from the long thoracic artery, (c) from the thoracic axis (acromiothoracic artery). 8. In females there is occasionally an independent external mammary artery, arising from the axillary trunk below the origin of the posterior circumflex artery. Sixth Group. 9. *Rami subscapulares*, the short subscapular arteries, must also be mentioned, usually two in number, small vessels passing backwards from the axillary trunk to the subscapularis muscle.

²⁰⁷ Parts of the Axillary Artery (*Ibid.*).—By Von Langer and Toldt, as by English anatomists, the axillary artery is divided into three parts, but the limits of these parts are not exactly identical in the Continental and the English description. As already mentioned (see note ²⁰⁶ above), according to Von Langer and Toldt, the subclavian artery becomes the axillary at the lower border of the subclavius muscle, but according to English anatomists at the outer border of the first rib. It is obvious that the English boundary is more precise, inasmuch as the position of the subclavius muscle varies with the varying elevation of the shoulder. The first part of the axillary artery extends from its commencement to the upper border of the pectoralis minor muscle. The second part of the artery lies beneath (behind) the pectoralis minor muscle. The third part of the vessel extends from the lower border of the pectoralis minor muscle to the termination of the vessel. In this respect, again, there is a difference between the Continental and the English usage, for according to the former, the axillary artery becomes the brachial opposite the lower (outer) border of the pectoralis major muscle; but according to the latter, opposite the lower (outer) border of the teres major muscle. Thus, the third part of the axillary artery, as the term is understood in England, is nearly twice as long as the third part of the vessel as described by Von Langer and Toldt.

²⁰⁸ *Arteria Cervicalis Superficialis* (*Ibid.*).—“The superficial cervical artery is distributed to the superficial structures of the (greater) supracleavicular fossa, to the trapezius, levator anguli scapulae, rhomboideus major, serratus posterior, and splenius capitii muscles. Its size and the area it supplies are exceedingly variable; it may entirely replace the transverse cervical artery (*arteria transversa colli*), or, conversely, be entirely replaced by that vessel. Normally it is one of the principal branches of the

thyroid axis” (Von Langer and Toldt, *op. cit.*, p. 512). Quain’s use of the term *superficial cervical artery* is explained in notes ²³⁴, ¹³⁵, and ¹⁷² above.

²⁰⁹ The Branches of the Brachial Artery (Fig. 1019, p. 630).—1. *Arteria profunda brachii*, the superior profunda artery (of the arm), which gives the following offsets: (a) *Ramus deltoides*, the communicating branch (Macalister) or deltoid branch (Quain), which anastomoses beneath the deltoid muscle with branches of the posterior circumflex artery; (b) *arteria nutrita humeri*, the nutritious (Macalister) or medullary branch (Quain); (c) *arteria collateralis media*, the muscular branch to the inner head of the triceps muscle; (d) *arteria collateralis radialis* (regarded in England as the terminal portion of the superior profunda artery itself), the anterior terminal branch of which passes with the musculospiral nerve through the external intermuscular septum, and anastomoses with the radial recurrent artery, while the posterior terminal branch passes along the back of the external intermuscular septum, and ends in the *rete olecrani*, anastomosing there with the *inferior profunda, anastomotica magna, posterior ulnar recurrent*, and *interosseous recurrent arteries*. There are, further, (e) the muscular branch to the long head of the triceps muscle; (f) a cutaneous branch with the inner cutaneous branch of the musculospiral nerve. 2. *Arteria collateralis ulnaris superior*, the inferior profunda artery, which supplies the inner head of the triceps, and ends in the *rete olecrani* already described. 3. *Arteria collateralis ulnaris inferior*, the anastomotic branch (anastomotica magna), which runs in the inner bicipital furrow, perforates the intertuberous intermuscular septum, and joins the *rete olecrani*; it gives an anterior branch which descends between the brachialis anticus and pronator radii teres muscles in front of the internal condyle to anastomose with the anterior ulnar recurrent artery. 4. In addition to the medullary or nutritious branch of the *superior profunda*, there is another and larger vessel supplied to the humerus called the chief medullary artery, which usually arises in common with the upper muscular branch to the brachialis anticus muscle; the foramen for the chief medullary artery is just below the insertion of the coracobrachialis muscle, that for the nutrient branch of the *superior profunda* is higher up, near the top of the spiral groove. 5. Small muscular branches are furnished by the brachial artery during its course, and are stated by Macalister to be usually eight in number. 6. According to Macalister, a *vas aberrans*, arising close to or in common with the *superior profunda artery*, descending over the median nerve, supplying the biceps, and ending by joining the radial (or less commonly the ulnar) artery, is usually present, but often so small as to escape injection; other authorities speak of its presence as exceptional. When large it may replace and simulate the brachial artery, which then appears to be superficial to the median nerve. If moderately large, it may replace the ordinary origin of the radial artery (rarely that of the ulnar artery); we thus have the condition, often met with, called the *high bifurcation of the brachial artery*. “A very interesting variety in the origin of the branches of the brachial artery is that in which the *superior profunda artery*, the *inferior profunda artery*, and the *anastomotica magna artery* all arise by a common stem, from which the *circumflex arteries* and the *subscapular artery* are also derived. In such cases, the axillary artery, as it emerges from the axilla, is seen to divide into two trunks of equal size, one of which runs as far as the elbow without giving off any branches of importance, whilst the other supplies the structures of the shoulder and the upper arm. This condition resembles that normally met with in the distribution of the femoral artery” (Von Langer and Toldt, *op. cit.*, p. 516).

²¹⁰ *Upper Limit of the Brachial Artery* (*Ibid.*).—As already mentioned in note ²⁰⁷ above, according to Von Langer and Toldt the *axillary artery* becomes the *brachial artery* opposite the lower (outer) border of the pectoralis major; but according to English anatomists somewhat lower than this, opposite the lower (outer) border of the teres major muscle. The former definition is really a more accurate one, for the vessel is no longer in the axilla after it has emerged from behind the pectoralis major muscle. Macalister, indeed, goes further than this, remarking that the whole of the *third stage of the axillary artery* (so-called)—*i.e.*, from the lower border of the pectoralis minor to the lower border of the teres major muscle—"belongs to the arm, not to the axilla, and should properly be described as part of the brachial artery" ("Anatomy," p. 269). The distinction is, of course, one of definition merely, and has no practical significance.

²¹¹ (*Fig. 1020*, p. 631.) Partly owing to the independent origin of the *muscular branch* to the *internal or deep head of the triceps muscle*, *arteria collateralis media*, the distribution of the branches of the *superior profunda artery* differs somewhat in this specimen from the description given in note ²⁰⁹ above (*q.v.*). Thus, the lower part of the *superior profunda artery*, called by the author *arteria collateralis radialis*, is seen to divide into two branches, the *anterior terminal branch* passing with the musculospiral nerve through the external intermuscular septum, and the *posterior terminal branch* passing to the back of the elbow to join in the formation of the *rete olecrani*. Higher up, a large *muscular branch* to the *external head of the triceps* is seen.

²¹² *Rete Articulare Cubiti*, *Rete Olecrani*, or *Arterial Network of the Elbow* (*Ibid.*).—The vessels taking part in the formation of this plexus have been enumerated in note ²⁰⁹ above.

²¹³ *Digital Arteries* (*Fig. 1022*, p. 633).—In England the *palmar digital arteries* are usually spoken of as the *digital arteries* without qualification, the *dorsal digital arteries*, which are very much smaller than the *palmar*, being often ignored, except in the case of the *dorsal arteries of the thumb and of the index finger*. Moreover, the distinction made by the author between the *arteria digitales volares communes*, the *common palmar digital arteries* (before their bifurcation), and the *arteria digitales volares propriae*, the *proper palmar digital arteries* (after their bifurcation), fully expressed in Quain's nomenclature. The *arteria digitales volares propriae* of Toldt are by Quain termed *digital arteries* without further qualification; and these are said to divide into two *collateral branches* for the respective fingers, the *arteria digitales volares propriae* of Toldt.

²¹⁴ *Anterior Annular Ligament of the Wrist* (*Ibid.*).—I take this opportunity of supplying an omission from the translation of Part III. (already published). The *anterior annular ligament of the wrist* consists of two layers, a *superficial* and a *deep*, the *ulnar artery* lying between them. The *superficial layer*, called by Toldt *ligamentum carpi volare*, is homologous with the *posterior annular ligament of the wrist* (*ligamentum carpi dorsale* of Toldt), both structures being specialized portions of the superficial layer of the deep fascia of the forearm; this superficial layer is continued below into the *palmar fascia*. The *deep layer*, called by Toldt *ligamentum carpi transversum*, arches over the median nerve and the nine flexor tendons, forming the anterior wall of the canal of the carpus, and is a specialized band of the intermuscular septum between the *palmaris longus* and the *flexor sublimis* muscles. The distinction between these two layers of the anterior annular ligament is not clearly indicated in all English text-books, but it is emphasized by Macalister (*op. cit.*, p. 309). In the translation of Part III. of this work, pp. 322, 324, 332, 334, I have

rendered the terms *ligamentum carpi volare* and *ligamentum carpi transversum* indifferently as *anterior annular ligament of the wrist*.

²¹⁵ *Anterior Carpal Rete* (*Fig. 1023*, p. 634).—This arterial network lies beneath the lower edge of the pronator quadratus muscle, and in front of the carpus. It is supplied by the *anterior radial carpal* and *anterior ulnar carpal arteries* (a large communicating branch between these vessels constituting the *anterior carpal arch*); also by the *anterior communicating* or *anterior terminal branch* of the *anterior interosseous artery*, and by the *recurrent* or *ascending branches* of the *deep palmar arch*.

²¹⁶ *Superior Perforating Arteries* (*Ibid.*).—These small vessels, which pass through the proximal extremities of the intermetacarpal spaces, connecting the *deep palmar arch* with the *posterior carpal rete* (see note ²¹⁹ below), are distinguished as *superior perforating* from the *inferior perforating arteries* which pass through the distal extremities of the intermetacarpal spaces, connecting the *dorsal interosseous arteries* with the (*palmar*) *digital arteries*. The *radial artery* itself, as it passes into the palm of the hand between the heads of the first dorsal interosseous (or *abductor indicis*) muscle, thus represents the *first superior perforating artery*. This is well shown in *Fig. 1024*.

²¹⁷ *Arteria Collateralis Radialis* (*Ibid.*).—This name is given by the author to the lower part of the *superior profunda artery* (of the arm) of English authors, after it has given off the *arteria collateralis media*, the muscular branch to the inner head of the *triceps* muscle (see notes ²⁰⁹ and ²¹¹ above).

²¹⁸ (*Ibid.*). The *large artery of the thumb* and the *radial artery of the index finger*, the last branches furnished by the *radial trunk* before it turns inwards to form the *deep palmar arch*, are commonly known in England by their Latin names of *principis pollicis* and *radialis indicis arteriae*.

²¹⁹ *Posterior Carpal Rete* (*Fig. 1024*, p. 635).—This arterial network lies beneath the extensor tendons on the back of the carpus. It is supplied by the *posterior radial carpal* and *posterior ulnar carpal arteries* (a large communicating branch between these vessels constituting the *posterior carpal arch*); also by the *terminal offsets* of the *anterior* and *posterior interosseous arteries*; while the *superior perforating arteries* (see note ²¹⁶ above) connect the *posterior carpal rete* with the *deep palmar arch*.

²²⁰ *Dorsal Interosseous Artery* (*Ibid.*).—The *first dorsal interosseous artery*, called by Macalister the *metacarpal artery*, a branch of the *radial artery*, often arises, as in this instance, in common with the *posterior radial carpal branch*; it runs in the back of the interval between the second and third metacarpal bones. The *second and third dorsal interosseous arteries*, arising from the *posterior carpal arch*, are distributed in the back of the third and fourth interosseous spaces. See also note ²²² below.

²²¹ *Superficial Vein* see in *Fig. 1028* (p. 638).—The arrangement of the *superficial veins* in this specimen is not that usually described as normal, but it is a very common variation from the normal, which will be better understood from an examination of the middle specimen of *Fig. 1020*, p. 697, in which the same arrangement is met with. A description of the **median vein of the elbow* is given in note ²⁰⁸ below. In *Fig. 1028* the *radial vein*, having already given off the **median vein of the elbow*, has become the *cephalic vein* (see note ²⁰⁵ below); but the *ulnar vein* has not yet become the *basilic vein*, as it has not yet been joined by the **median vein of the elbow*. This *ulnar vein* has no doubt been formed by the confluence of *anterior* and *posterior ulnar veins*. In the author's terminology it is the *vena basilica* (see note ²⁰⁶ below). The vein (unnamed in the figure) lying just in front of the *ulnar vein* is most probably the *median vein* (of the forearm), which has inclined inwards to join the *ulnar vein*.

²²³ (Fig. 1031, p. 639.) It will be noticed that the author numbers the *arteria metacarpae dorsales* according to the number of the interosseous space in which they lie. In Quain's nomenclature, however, the *arteria metacarpae dorsalis prima*, being very small, is ignored; and thus the *first dorsal interosseous artery* of Quain (*metacarpal branch of the radial artery*, according to Macalister) corresponds to the *arteria metacarpae dorsalis secunda* of the author. The Continental enumeration of these vessels is much to be preferred. See also note ²²⁰ above.

²²⁴ *Femoral Artery* (Fig. 1033, p. 641).—The portion of this vessel above the origin of the *profunda* is often distinguished as the *common femoral*, that below the origin of the *profunda* as the *superficial femoral artery*.

²²⁵ *Internal Circumflex Artery (of the Thigh)* (Ibid.).—According to Von Langer and Toldt's description (*op. cit.*, p. 525), the *arteria circumflexa femoris medialis* divides almost immediately after its origin from the *profunda* into a *ramus superficialis*, distributed to the muscles of Scarpa's space, and a much larger *ramus profundus*, which passes backwards between the pectenous and iliopeos muscles above the small trochanter to the back of the neck of the femur and supplies the *ramus acetabuli* to the hip-joint. According to the description given by Quain, the *ramus superficialis* corresponds to unnamed *muscular branches*, while the *ramus profundus* is the continuation of the *internal circumflex artery* itself; arrived at the back of the femur it supplies an *articular branch*, the author's *ramus acetabuli*, the development of which is inversely proportional to that of the *articular branch of the obturator artery*; the *internal circumflex* finally divides into *ascending* and *transverse branches*, the former following the tendon of the obturator externus muscle to the digital or trochanteric fossa, and the latter ending in the *crucial anastomosis* (see note ²²⁰ below).

²²⁶ *Rete Patellæ* (Ibid.).—The *patellar rete* is that portion of the *rete articulare genu*, the *"articular rete of the knee"*, which lies immediately in front of the patella. The term *patellar rete* is used by Macalister to denote the whole of the articular network of the knee; but Toldt limits the application of *rete patellæ* as above defined, and the latter's usage is to be preferred, on the score of accuracy. For an account of the *articular rete of the knee* as a whole see note ²²⁷ below.

²²⁷ *Branches of the Femoral Artery in the Lower Part of Hunter's Canal* (Fig. 1034, p. 642).—The author's nomenclature of these differs from that usual in England. The branches of the femoral artery for the region of the knee-joint often arise by a common trunk, the *arteria genu suprema*. This springs from the femoral artery just above the opening in the adductor magnus muscle, and runs down towards the capsule of the knee-joint in the substance of the vastus intermuscular muscle near the common extensor tendon. It gives *rami musculares* to the vastus intermuscularis which, descending beside the internal saphenous nerve, is distributed to the integument; and finally *rami articulares*, which contribute to the *rete articulare genu* [see note ²²⁷ below]. Often, however, the greater number of the *rami musculares* and the *ramus saphenus* are supplied by a separate branch of the femoral artery, which arises from that trunk somewhat higher up in Hunter's canal" (Von Langer and Toldt, *op. cit.*, pp. 526, 527). According to Quain's description, several *muscular branches* are supplied by the femoral artery in Hunter's canal, the lowermost of which, constant, and of considerable size (sometimes derived from the upper part of the popliteal artery), passes outwards across the back of the femur, perforating the short head of the biceps and the external intermuscular septum, to end in the crureus muscle. The *anastomotic artery* arises from the femoral a little above the opening in the adductor magnus,

and divides almost immediately into two branches (which are in many cases derived separately from the femoral trunk). The *superficial branch* runs down with the internal saphenous nerve; the *deep branch* courses along the front of the tendon of the adductor magnus muscle to the internal condyle of the femur. It supplies *articular branches* to the *rete articulare genu*. From these descriptions it will be apparent that the *anastomotic artery* is identical with the author's *arteria genu suprema*, and the *superficial branch* of that vessel with the author's *ramus saphenus*.

²²⁸ **Rete Articulare Genu* (Ibid.).—The *"articular rete of the knee"* is an arterial network over the front and sides of the knee-joint. It consists of two layers: a *superficial*, with wide meshes and very minute constituent vessels, lying between the skin and the deep fascia; and a *deep*, with finer meshes and larger constituent vessels, actually in contact with the bones. The *patellar rete* is that portion of the network situated immediately in front of the patella, but the term is by English anatomists usually applied (inaccurately) to the network as a whole. The vessels supplying the rete are six in number, viz., the four lateral *articular branches* of the popliteal, the *anastomotic branch* of the femoral, and the *recurrent branch* of that vessel with the author's *ramus saphenus*.

²²⁹ *Hunter's Canal* (Ibid.).—It is to be noted that the author uses the term *Hunter's canal* in a sense different from that attached to it by English anatomists. We find the following description in Von Langer and Toldt's "Anatomy," 7th ed., p. 263: "The *fossa iliopectinea* (Scarpa's triangle) . . . passes below into a groove, bounded internally by the adductor muscles and externally by the vastus intermuscular muscle, and extending downwards along the long axis of these muscles. Already at the upper part of the middle third of the thigh, this groove is roofed by the sartorius muscle, and in addition, from about the middle of the thigh downwards, it is covered by a strong tendinous membrane, which stretches across from the commencement of the tendon of the adductor magnus muscle to the vastus intermuscular muscle. Thus the groove is converted into a closed canal, *canalis adductiorius Hunteri* (*Hunter's canal*)."¹ If this description leaves the point still undecided, the description of Fig. 1034 shows clearly that the fascial layer there figured covering the lower part of the femoral artery is the roof of Hunter's canal, the upper aperture of which is in the middle of the thigh. In England, however, the sartorius muscle is regarded as the roof of Hunter's canal, and that canal extends from the point at which the muscle comes to lie in front of the artery, i.e., the apex of Scarpa's triangle, to the opening in the adductor magnus muscle. And while it is true that the accessory fascial roof of Hunter's canal is thicker and stronger below than above the middle of the thigh, that fascial roof exists wherever the femoral artery is covered by the sartorius muscle, and the well-defined upper margin of the fascia shown in Fig. 1034 is the product of dissection.

²³⁰ *Gluteal Artery* (Fig. 1038, p. 646).—By English anatomists this vessel is described as dividing just after it emerges from the pelvis into a *superficial*, smaller, part, and a *deep*, larger, part; the latter, again, divides into *superior* and *inferior branches*. In Toldt's nomenclature the *superficial* part is called the *muscular branch* to the gluteus maximus muscle; whilst it is the continuation of the trunk of the *arteria glutæa superior* which divides into a *ramus superior* and a *ramus inferior*.

²³¹ *Trochanteric Rete and Crucial Anastomosis* (Ibid.).—The *anastomotic branch* of the *sciatic artery* (seen in Fig. 1038 running downwards and outwards along the lower border of the pyriformis muscle), the *ascending branch* of the *first or superior perforating artery*, the *transverse branch* of the *internal circumflex artery*, and

the transverse branch of the external circumflex artery, inosculate behind the great trochanter and in the digital fossa to form what is often called the *crucial anastomosis*. A lateral extension from this anastomosis, in the form of a network of fine vessels on the outer surface of the great trochanter, beneath the gluteus maximus muscle, constitutes the *trochanteric rete*.

²²¹ *Adductor Magnus Muscle* (*Ibid.*).—This is the posterior and inferior portion of the *adductor magnus muscle* as usually described by English anatomists, the anterior and superior portion of the same muscle being the *adductor minimus muscle* of Toldt. See note ² to p. 345 in Part III. of this work.

²²² *Sural Arteries* (Fig. 1040, p. 648).—The *external and internal sural branches* of the *popliteal artery* are sometimes designated the *inferior muscular branches* (the *superior muscular branches* of the same trunk supplying the lower parts of the *adductor magnus* and *hamstring muscles*). The name *sural* is, however, preferable, as being more distinctive. The *cutaneous arteries of the calf*, long slender vessels, shown in Figs. 1040 and 1044, may arise, as in the specimen here figured, from the *sural arteries*; frequently, however, they are independent branches of the popliteal trunk. They are often distinguished by the name of *superficial sural arteries*.

²²³ *Medullary or Nutritious Arteries of the Femur* (Fig. 1041, p. 649).—According to Von Langer and Toldt (*op. cit.*, pp. 525, 526) the *arteria nutritiva femoris superior* is usually a branch of the *arteria perforans prima*, and the *arteria nutritiva femoris inferior* (larger than the former) is usually a branch of the *arteria perforans tertia*. Quain, in the osteological section of his work, figures two arterial foramina in the shaft of the femur, near the upper and the lower end, respectively, of the *linea aspera*, but in the angiographical section he omits to mention the offset of the *first or superior perforating artery*, which enters the upper of these two foramina. The *principal medullary artery of the femur* (*arteria nutritiva femoris inferior* of Toldt) is, according to Quain (*op. cit.*, vol. ii., part ii., p. 491), derived either from the *second (middle)* or from the *third (inferior) perforating artery*. An additional medullary artery is, according to this author, frequently derived from the *fourth perforating artery* (the terminal branch of the *deep femoral or profunda artery*). According to Macalister, the chief nutrient artery of the femur is usually derived from the *second or middle perforating artery*.

²²⁴ *Popliteal Canal* (*Ibid.*).—This name is not used by Quain or Macalister. It is applied by the author to the space beneath (anterior to) the tendinous arch of the soleus muscle through which the posterior tibial vessels and nerve pass from the popliteal space beneath the soleus muscle. See Fig. 612, p. 363, and Fig. 620, p. 371, in Part III. of this Atlas, and also note ²⁴⁵ below.

²²⁵ *External Tarsal Artery* (Fig. 1042, p. 650).—This name is used by Macalister. Quain, on the other hand, who leaves the small *internal tarsal arteries* unnamed, calls this vessel the *tarsal artery* without further qualification. The name used in the text is to be preferred.

²²⁶ *Malleolar Arteries* (*Ibid.*).—Both the *anterior external* and the *anterior internal malleolar arteries* are branches of the *anterior tibial artery*; the *posterior internal malleolar artery* is a branch of the *posterior tibial artery*; and the *posterior external malleolar artery* (an offset left unnamed by Quain) is derived from the *peroneal artery*.

²²⁷ *Retia Malleolaria* (*Ibid.*).—The *external and internal malleolar retia* are connected in front with the *dorsal rete of the foot* (see note ²²⁸ below), and behind and below with the *calcaneal rete* (see note ²²⁹ below). The *external malleolar rete* is supplied by the two *external malleolar arteries* (*anterior and posterior*—see note ²²⁶ above), and by a branch of the *external tarsal artery*; the

internal malleolar rete is supplied by the two *internal malleolar arteries* (*anterior and posterior*—see note ²²⁶ above), and by branches of the *internal tarsal arteries*.

²²⁸ *Fundiform Ligament of Retzius* (*Ibid.*).—This name is given to the undivided outer limb of the anterior annular ligament of the ankle, or *ligamentum lambdoideum* (see Fig. 614, p. 365, and Fig. 616, p. 367, and notes to same pages, in Part III. of this work).

²²⁹ *The Dorsal Rete of the Foot and the Dorsal Interosseous Arteries* (Fig. 1043, p. 651).—The arrangement of the bloodvessels of the dorsum of the foot described as normal by Von Langer and Toldt in their “Anatomy” differs in some respects from that shown in Fig. 1043, which is, however, normal according to English anatomists. The German authors write (*op. cit.*, p. 530): “The *arteria tarsae lateralis [external tarsal artery]*—see note ²¹⁵ above] combines with direct branches of the *arteria dorsalis pedis* and with offsets of the *arteria tarsae mediales [internal tarsal arteries]* to form the extensive *rete dorsale pedis*, from which numerous offsets to the tarsal bones are derived. From the anterior extremity of the *dorsal rete of the foot* three *arteriae metatarsarum dorsalis* [II.-IV., the *second, third, and fourth dorsal interosseous arteries*] proceed forwards. . . . These latter vessels are considerably reinforced by the *rami perforantes [posterior perforating arteries]* by means of which they are directly connected with the [*deep*] *plantar arch*; and in many instances the *second, third, and fourth dorsal interosseous arteries* are derived chiefly or exclusively from these *posterior perforating arteries*. In other cases, however, a vessel of considerable size arises from the outer side of the *dorsal artery of the foot*, known as the *arteria arcuata [metatarsal artery]*, and arches forwards and outwards across the bases of the metatarsal bones to reach the outer border of the foot, receiving on the posterior or concave side of the arch numerous offsets from the *dorsal rete of the foot*, and supplying from the anterior or convex side of the arch the *second, third, and fourth dorsal interosseous arteries*. . . . The *first dorsal interosseous artery* is the direct continuation of the *dorsalis pedis artery*; and this vessel supplies not only the *collateral dorsal digital arteries* for the adjoining sides of the *great and second toes*, but also the *dorsal digital artery* for the inner side of the former.” .

²³⁰ *Termination of Dorsalis Pedis Artery* (*Ibid.*).—The *dorsal artery of the foot* terminates by dividing into two vessels of unequal size. The smaller terminal branch, which is continued in the same direction as the parent trunk, is the *first dorsal interosseous artery* in Quain’s nomenclature, but Macalister calls it the *dorsalis hallucis*. (Regarding the distribution of this vessel see the end of note ²²⁹ above.) The larger terminal branch, usually known as the *communicating branch to the deep plantar arch*, passes between the heads of the *first dorsal interosseous muscle*, communicates with the *external plantar artery* to complete the *deep plantar arch*, and provides the *plantar digital vessels* for both sides of the *great toe* and for the inner side of the *second toe*; for this reason Quain gives the alternative name of *plantar digital branch* to this vessel. Inasmuch, however, as it is in series with the other *posterior perforating arteries*, and is serially homologous with the *perforating portion of the radial artery* in the upper limb, the name of *first posterior perforating artery* would be more accurately descriptive than any other. Macalister, to conclude, calls it the *first interosseous perforating artery*.

²³¹ *Perforating Arteries* (*Ibid.*).—According to the English nomenclature, there are two sets of these vessels—*anterior* and *posterior*. The latter, to which alone the name of *rami perforantes* is given by the author, larger in size and more constant than the former, are offsets of the *deep plantar arch*, and are described in

notes²³⁹ and²⁴⁰ above. The anterior perforating arteries are small and inconstant vessels connecting the anterior extremities of the dorsal interosseous arteries with the plantar digital arteries adjacent to the terminal bifurcation of these vessels. The author calls them *rami anastomotici arteriarum metatarsarum dorsarium cum arteriis digitalibus plantaribus*.

²⁴² *Calcaneal Rete* (Fig. 1044, p. 652).—The arterial network over the back and the under surface of the heel communicates above with the *external* and *internal malleolar retia* (see note²³⁷ above), and in front with the *plantar rete* (see note²³⁸ below). It is supplied by the *external* and the *internal calcaneal branches*, the former being derived from the *peroneal artery*, and the latter from the *posterior tibial artery* (Von Langer and Toldt), from the *external plantar artery* (Quain), or from both these vessels (Macalister).

²⁴³ *Plantar Rete* (*Ibid.*).—The fine-meshed arterial subcutaneous network over the sole of the foot communicates freely with the *calcaneal* and *malleolar retia* and with the *dorsal rete of the foot*, and in addition to the blood received from these sources is reinforced by numerous unnamed cutaneous offsets of the branches of the plantar arteries, which reach the rete by perforating the plantar fascia.

²⁴⁴ (Fig. 1045, p. 653.) The fascia covering the popliteus muscle is reinforced by, and, indeed, to a large extent derived from, a downward expansion of the tendon of insertion of the semimembranosus muscle.

²⁴⁵ *Lower Limit of the Popliteal Artery* (*Ibid.*).—There is some inconsistency in the account given both by Quain and by Macalister of the lower limit and point of division of the popliteal artery. According to the former author, "the popliteal artery . . . reaches from the opening in the adductor magnus to the lower border of the popliteus muscle, where it divides into the anterior and posterior tibial arteries." But in describing the relations of the artery Quain states that "its termination is beneath the upper margin of the soleus muscle" (*op. cit.*, vol. ii., part ii., p. 493). Macalister also states that the artery divides "at the lower border of the popliteus muscle" (*op. cit.*, p. 499); and a few pages later, in describing the termination of the artery, he tells us that it is exposed by removing the gastrocnemius and the solens muscles (p. 509). Now, these statements are irreconcilable, for the *popliteal* or *oblique line* of the tibia (see Fig. 334, p. 136, in Part I.), which gives origin to the soleus muscle, at the same time marks the lower limit of the insertion of the popliteus muscle. Hence these muscles do not overlap, as is well shown by Fig. 612, p. 363, in Part III., and if the popliteal artery really divided at the lower border of the popliteus muscle, the soleus muscle could not possibly lie behind its termination. The description given by Von Langer and Toldt of the ending of this artery is at once more accurate and more consistent than that of the English anatomists just quoted. The German authors ("Anatomy," 7th ed., p. 527) describe the vessel as passing down behind the popliteus muscle to enter what they call the *popliteal canal* (see note²⁴¹ above)—i.e., the space beneath (anterior to) the *tendinous arch of the soleus muscle*, and immediately thereafter dividing into anterior and posterior tibial arteries (see also note²⁴⁶ below). The entrance to the *popliteal canal* is also shown in Fig. 612. In not a few instances, indeed, the popliteal artery divides, as described by Quain and Macalister, at the lower border of the popliteus muscle, and in such cases, as stated in note² to p. 363, Part III., it is the *posterior tibial* vessels and nerve that enter the *popliteal canal*; but this high division of the artery precludes the possibility of its termination lying beneath the upper part of the soleus muscle.

²⁴⁶ *Soleus Muscle* (Fig. 1046, p. 654).—It is somewhat inconsistent of the author to speak of the *tibial head (caput)* and the *fibular head* of the soleus muscle, inasmuch as he gives the name of *triceps surae* to the gastrocnemius and soleus, considered as a single three-headed muscle (see Figs. 617 and 618, pp. 368 and 369, in Part III.), of which two heads, the inner and outer head of the gastrocnemius, are superficial and attached to the femur, whilst the third head, the soleus, is deep, and attached to the bones of the leg. Moreover, the fibres from the fibula, those from the tendinous arch, and those from the tibia, form a continuous muscular mass, which is not separable into distinct heads (see Fig. 612, p. 363, in Part III.). Quain, however, falls into the same error when he writes: "The *tibial head* of the soleus is almost peculiar to man: among the lower animals it occurs, of small size, only in the gorilla, and sometimes in the chimpanzee" (*op. cit.*, vol. ii., part ii., p. 264). It should, of course, read "the *tibial origin* of the soleus," etc.

²⁴⁷ *Communicating Branches between Posterior Tibial and Peroneal Arteries* (*Ibid.*).—Quain writes (*op. cit.*, vol. ii., part ii., pp. 496, 497): "A communicating branch passes transversely beneath the flexor longus hallucis muscle, between the posterior tibial and peroneal arteries, about an inch above the ankle-joint. A second loop of communication between these vessels is sometimes present, lying in the fat beneath the *tendo Achillis*." It is this second loop which is seen in Fig. 1046, just above the severed extremity of the *tendo Achillis*; and in Fig. 1047, in addition to both the vessels above described, we see a large communicating branch two or three inches above the ankle-joint. In Von Langer and Toldt's "Anatomy" (7th ed., p. 528) the principal communicating branch between these vessels is called *ramus anastomoticus*.

²⁴⁸ **Fibular Branch of the Anterior Tibial Artery* (Fig. 1047, p. 655).—Quain and Macalister agree in calling this small vessel the *superior fibular branch*; but as there is no *inferior fibular branch*, the name used in the text is to be preferred.

²⁴⁹ *Division of the Popliteal Artery* (*Ibid.*).—As explained in note²⁴⁵ above, Von Langer and Toldt describe the popliteal artery as entering the **popliteal canal*, and "immediately thereafter dividing into anterior and posterior tibial arteries." It is necessary to add that the German authors regard the *anterior tibial artery* as a branch of the *popliteal artery*, which latter vessel, in their view, terminates nearly an inch below the origin of the anterior tibial by division into the *posterior tibial* and *peroneal arteries*. According to the description usually given by English anatomists, on the other hand, the terminal branches of the *popliteal artery* are the *anterior* and *posterior tibial arteries*, while the *peroneal artery* is regarded as a branch of the *posterior tibial artery*. The difference is solely one of terminology—I may, in conclusion, mention an actual but somewhat rare variety in which the popliteal artery divides into three terminal branches: the *anterior tibial*, *posterior tibial*, and *peroneal arteries*.

²⁵⁰ *Branches of Internal Plantar Artery* (Fig. 1048, p. 656).—According to Von Langer and Toldt (*op. cit.*, p. 529), this vessel divides into a *ramus superficialis* (*superficial branch*) which supplies the abductor hallucis muscle, and a *ramus profundus* (*deep branch*) which sinks deeply into the inner plantar furrow (the interval between the abductor of the great toe and the short flexor of the toes). Quain (*op. cit.*, vol. ii., part ii., p. 498) enumerates the branches of the internal plantar artery as follows: (a) Small communicating branches to the digital arteries of the three inner clefts; (b) muscular branches; (c) cutaneous branches in the inner plantar furrow; (d) cutaneous branches to the inner border of the foot; (e) deep offsets to the bones and joints of the foot;

and, finally, (f) the internal plantar artery terminates opposite the head of the first metatarsal bone by joining the digital artery to the inner side of the great toe. According to Macalister (*op. cit.*, p. 515), one of the branches of the internal plantar artery, which accompanies and overlies the internal plantar nerve, "may join the superficial branch of the external plantar artery to form a superficial plantar arch." This, however, is seldom large enough to admit coarse injection."

²³¹ *Plantar Digital Arteries* (*Ibid.*).—The four arteries passing from the (deep) plantar arch to the four clefts between the toes, where they divide into the *collateral digital arteries*, "are called, on account of their course in the interosseous spaces of the metatarsus, *arteria metatarsae plantares* [*plantar metatarsal arteries*]" (Von Langer and Toldt, *op. cit.*, p. 529). In England, however, these vessels are known simply as (*plantar*) *digital arteries*; sometimes, however, to distinguish them from the *collateral digital arteries* into which they divide, the digital trunks before division are known as the *common digital arteries*. (Cf. note ²³², on the nomenclature of the digital arteries of the hand.)

²³² *Fascia Iliopectinea* (*Fig. 1050*, p. 658).—The exact significance of this term as used by the author is explained in note ¹ to p. 390, in Part III. Here we see it forming the posterior layer of the femoral or crural sheath.

²³³ (*Ibid.*) *Or pubic portion of the fascia lata*; this is continuous above and externally with the fascial layer called by the author *fascia iliopectinea* (see note ²³² above, also the description at the foot of *Fig. 598*, p. 349, in Part III).

²³⁴ *Nervus Tibialis* (*Figs. 1054, 1055*, p. 660).—In the author's nomenclature, the name *nervus tibialis* is given to the larger of the two terminal branches of the *great sciatic nerve* from the point of division of the parent trunk until the **tibial nerve* itself divides (usually just below the internal annular ligament of the ankle) into the *internal* and *external plantar nerves*; in England, however, the upper part of this nerve, as far as the lower border of the popliteus muscle, is known as the *internal popliteal nerve*, and for the rest of its course it receives the name of *posterior tibial nerve*.

²³⁵ **Dorsal Interosseous Fascia* (*Fig. 1056*, p. 660).—"In connexion with the extensor brevis digitorum muscle, we find a well-developed *deep layer* of the *deep fascia of the dorsum* of the foot, known as the *fascia interossea dorsalis*, which forms a covering for the muscle and for the dorsal artery of the foot, and is connected above with the deep layer of the anterior annular ligament of the ankle" (Von Langer and Toldt, *op. cit.*, p. 267). Quain says merely: "The *fascia of the dorsum* of the foot is reduced to a thin membrane prolonged from the anterior annular ligament over the extensor tendons. Beneath it, deeper layers of fascia are placed over the short extensor of the toes and the interosseous muscles" (*op. cit.*, vol. ii., part ii., p. 268).

²³⁶ **Plantar Interosseous Fascia* (*Ibid.*).—"In the region of the metatarsus, the principal branch of the external plantar artery runs between the second and the third layer of muscles, covered by the easily demonstrated *fascia interossea plantaris*, which separates the interosseous muscles from the adductor hallucis" (Von Langer and Toldt, *op. cit.*, p. 268). Reference to Part III. of this Atlas, *Fig. 627*, p. 378, and *Fig. 628*, p. 379, will show that the deep part of the external plantar artery and the fascial layer in question is between the *third* and *fourth* layers of the muscles of the sole as there enumerated, and not between the second and third, a different system of grouping being adopted. The **plantar interosseous fascia* is not described by Quain or Macalister, except vaguely, as "fascia covering the interosseous muscles."

²³⁷ **Deep Layer of the Deep Fascia of the Sole* (*Ibid.*).—No account of the **fascia plantaris profunda* is to be found even in Von Langer and Toldt's "Anatomy." Examination of *Fig. 1055* shows it to lie between the second and third layers of the muscles of the sole, and that it is, in fact, the layer of areolar tissue covering the adductor obliquus hallucis muscle.

²³⁸ *Presacral Venous Plexus* (*Fig. 1057*, p. 662).—"The lateral sacral veins form, by their communications with one another and with the middle sacral veins, a plexus over the anterior surface of the sacrum. They receive branches from the sacral canal through the anterior sacral foramina, and open at two or three points into the internal iliac vein" (Quain, *op. cit.*, vol. ii., part ii., p. 540). The *middle sacral vein* unites (in most cases) to form a common trunk, which usually enters the left common iliac vein. The name I have selected as the most suitable English equivalent for the author's *plexus sacralis anterior* is used by Macalister. The plexus communicates in front with the haemorrhoidal (or rectal) venous plexus, and behind with the anterior internal vertebral venous plexus (see note ²³⁷ below).

²³⁹ *Venous Plexuses of the Vertebral Column* (*Figs. 1061, 1062*, p. 665).—Neither Quain nor Macalister employs a complete series of English terms corresponding to those used by Toldt in his description of the venous plexuses of the vertebral column. Quain, in his account of the veins of the spine, mentions the plexuses connected with these veins, but gives them no distinctive names. I have, therefore, given in the text the literal English equivalents of the Latin terms used by the author, except that I use the word *plexus* in the singular where he uses it in the plural. The **posterior external vertebral plexus* (see note ²⁴⁰ below), for instance, is, as Macalister says, "longitudinally continuous from the sacrum to the skull," and the same is true of the other *vertebral plexuses*. The author, however, regards the *internal vertebral venous plexuses* as made up of a chain of connected segmental plexuses (see note ²³⁹ below). Alternative names for some of the vertebral plexuses are given in the notes in the usual manner.

²⁴⁰ **Posterior External Vertebral Venous Plexus* (*Ibid.*).—Macalister calls this the *plexus dorsalis* (of the vertebral column). According to Quain (*op. cit.*, vol. ii., part ii., pp. 532, 533), "the *dorsal spinal veins* are derived from the muscles and integument of the back, and form a plexus over the arches of the vertebrae." In another place in the same volume (p. 531) he calls it the *dorsal spinal plexus*. See also note ²³⁹ above.

²⁴¹ *The Condylar Emissary Vein, and the Venous Rete of the Anterior Condylar Foramen* (*Fig. 1063*, p. 666).—The *condylar emissary vein* passes from the lateral (sigmoid) sinus through the *posterior condylar foramen* to the beginning of the vertebral vein. It is distinguished by Macalister as the *posterior condylloid vein* from what this author calls the *anterior condylloid vein*. The latter is described by Quain (who does not, however, employ the name just given) as a venous ring surrounding the hypoglossal nerve in the *anterior condylar foramen*, which communicates internally with the occipital sinus and the intraspinal veins, externally with the vertebral veins and the plexus on the front of the spine (*i.e.*, the **anterior external vertebral plexus* of Toldt—see *Fig. 1066*, p. 669). The so-called *anterior condylloid vein* is shown in *Fig. 1080*, p. 685, under the name of *venous rete of the anterior condylar foramen*. Von Langer and Toldt describe it as follows: "The emissary veins from the venous ring surrounding the foramen magnum pass outwards through the anterior condylar foramina and, with their tributaries, form a network around the hypoglossal nerves, and are known as *retia canalis hypoglossi*" (*op. cit.*, p. 541).

²⁶² (Ibid.) Concerning the author's application of the term *arteria transversa colli* (*transverse cervical artery*), see Appendix, notes ¹³⁴, ¹³⁵, ¹⁷² and ²⁰⁸; similar considerations apply to the use of the term *vena transversa colli* (*transverse cervical vein*). Macalister gives *posterior scapular* as an alternative name for these vessels.

²⁶³ *Posterior Internal Vertebral Venous Plexus (Fig. 1064, p. 667).—"Within the spinal canal and on the back of the theca vertebralis there is a close plexus of veins, the *postero-internal plexus*, whose main trunks are longitudinal on the inside of the articular masses" (Macalister, *op. cit.*, p. 260). "The *posterior longitudinal spinal veins* . . . two in number . . . are often much broken up in parts of their course, and they communicate with one another by numerous cross-branches on the anterior surface of the arches of the vertebrae" (Quain, *op. cit.*, vol. ii., part ii., p. 533). Here we have two different modes of regarding the same anatomical data. See also note ²⁶⁹ above.

²⁶⁴ Lateral and Sigmoid Sinuses (Ibid.).—The common English usage is to extend the meaning of the term *lateral sinus* so as to include that sinus which (following Macalister as well as Toldt) is here distinguished as the *sigmoid sinus*. Thus, according to Quain and the majority of English anatomists, the *lateral sinus* extends from the internal occipital protuberance to the jugular foramen. In this work, however, it is regarded as extending from the internal occipital protuberance to the point where the channel for the sinus passes from the cerebral surface of the parietal to the cerebral surface of the temporal bone. At this point the lateral sinuses "in their archaic foetal condition communicated through the post-glenoid foramen with the primitive external jugular vein, but this connexion early diminishes, and is ultimately represented only in rudiment by the mastoid vein; an original small channel of communication from the lateral sinus to the posterior lacerate foramen becomes commensurately dilated, and appears in the adult as its continuation, the *sigmoid sinus*" (Macalister, *op. cit.*, p. 533).

²⁶⁵ *Venous Retia of the Intervertebral Foramen (Ibid.).—Writing of the *posterior longitudinal spinal veins* and the **posterior internal vertebral venous plexus* (see note ²⁶³ above), Quain states (*op. cit.*, vol. ii., part ii., p. 533): "From the plexus . . . offsets pass outwards to the intervertebral foramina, where they join the similar branches given off by the anterior longitudinal veins, and form a plexus around the issuing nerve;" but this author does not make use of the name given above. Macalister merely says that through each intervertebral foramen there emerges an outflowing *ramus spinalis* [*i.e.*, the **intervertebral vein*] to join the *plexus dorsalis* [*i.e.*, the **posterior external vertebral venous plexus*—see note ²⁶⁶ above].

²⁶⁶ Torcular Herophili, or Confluence of the Sinuses (Ibid.).—Properly this name should be applied only to a somewhat rare arrangement of the sinuses, when a true *confluentes sinuum* is exhibited at the common meeting-point of the superior longitudinal sinus, the straight sinus, the occipital sinus, and the right and left lateral sinuses. The usual arrangement is for the superior longitudinal sinus to be continued into the right lateral sinus, a dilatation marking the angle of union, this dilatation receiving the occipital sinus, and being conventionally called the *torcular Herophili*; the straight sinus turns to the left into the left lateral sinus, and the right and left lateral sinuses are commonly connected at their origin by a larger or smaller communicating vein. Sometimes this arrangement is reversed, the superior longitudinal sinus being continued into the left, the straight sinus into the right lateral sinus. (See Fig. 1234, p. 804, in Part VI.) The lateral sinuses that receives the superior

longitudinal sinus is larger than that which receives the straight sinus. Something approaching a true *confluence of the sinuses* is seen in Fig. 1064, in which the superior longitudinal sinus divides, a larger right division being continuous with the right lateral sinus, and a smaller left division being continuous with the left lateral sinus. The termination of the straight sinus in this specimen is not apparent in the figure, but the occipital sinus passes to the commencement of the right lateral sinus.

²⁶⁷ *Anterior Internal Vertebral Venous Plexus (Fig. 1065, p. 668).

—The *postero-internal plexus*, says Macalister (*op. cit.*, p. 260), is connected by transverse branches "with the still larger *antero-internal plexus*, which lies on the backs of the bodies of the vertebrae." The main stems of this latter are two long veins which pass from end to end of the vertebral canal on the roots of the pedicles of the vertebrae. Across the back of every body these are joined by a cross-branch. Each of these anterior transverse branches receives the *basivertebral vein* from the cancelli of the vertebral body." Quain gives no name to this plexus, but states (*op. cit.*, vol. ii., part ii., p. 533) that "the *anterior longitudinal spinal veins* are two large plexiform vessels which extend the whole length of the spinal canal, lying behind the bodies of the vertebrae, one along each edge of the posterior common ligament." Young (U.S.) calls this plexus the *anterior intraspinal plexus*. (See also note ²⁶⁹ above.)

²⁶⁸ Basivertebral Veins (Ibid.).—Quain calls these veins the *internal veins of the bodies of the vertebrae*, which is cumbersome. The name *basivertebral veins* is current, and sufficiently distinctive. Young (U.S.) calls them *vena basis vertebrarum*, of which the name used in the text is a convenient modification. For their connexion with the **anterior internal vertebral plexus*, see note ²⁶⁷ above.

²⁶⁹ *Venous Retia of the Vertebrae (Ibid.).—"The *plexus venosus vertebrarum interni* are mainly constituted by individual circularly-disposed extrathecal networks, the *retia venosa vertebrarum*, which, in each vertebra, are attached in front to the posterior surface of the vertebral body, and are in apposition behind with the neural arch. There are, therefore, as many vertebral venous retia as there are vertebrae in the spinal column. Their series is completed above by a plexiform vascular ring surrounding the foramen magnum" (see notes ²⁶⁶ and ²⁷¹ above).—Von Langer and Toldt, *op. cit.*, p. 540.

²⁷⁰ *Venous Plexus of the Nipple (*Circulus Venosus of Haller*) (Fig. 1068, p. 671).—Von Langer and Toldt, after stating that the veins of the breast correspond in distribution and nomenclature with the arteries of that organ, write (*op. cit.*, p. 41): "Noteworthy is the *plexus venosus mammæ* in the region of the areola, which is nothing more than a ring-shaped anastomotic chain of small subcutaneous veins surrounding the nipple (mamilla)." The term **venous plexus of the nipple* is not used by Quain or Macalister, but the former authority remarks (*op. cit.*, vol. iii., part iv., p. 290) that "Haller described a sort of anastomotic venous circle surrounding the base of the nipple as the *circulus venosus*"; and the latter, describing the blood-supply of the breast, writes (*op. cit.*, p. 264): "Some of the veins are deep, and accompany the arteries; others form a superficial circle of anastomosis in the areola, and end in the superior thoracic vein."

²⁷¹ *Costo-axillary and *Thoracico-epigastric Veins (Ibid.).—"Of considerable importance are the anastomotic connexions between the axillary vein and the intercostal veins, on the one hand, and between the axillary vein and the subcutaneous venous network of the anterior abdominal wall, on the other. The former is affected by a number of venous radicles, known as the **venæ*

costo-axillares, which arise in the region of distribution of the seven uppermost intercostal veins, and open by a common trunk into the axillary vein. The second series of communications takes place by means of the **venae thoraco-epigastricae*; these arise in the region of distribution of the superficial epigastric vein or are directly continuous with the branches of this vein and run on each side of the trunk directly upwards to the axilla, where they open into the axillary vein, sometimes by an independent trunk, sometimes by joining the long thoracic vein. Since the superficial epigastric vein is a tributary of the femoral vein, this elongated anastomosis affords a direct channel of communication between the axillary vein and the femoral vein" (Von Langer and Toldt, *op. cit.*, p. 547).

²²² *External Pudic Arteries and Veins* (*Ibid.*).—These are two in number, *superior* and *inferior*. Both the veins are seen in Fig. 1068; but of the arteries, the *superior* only is visible, the *inferior* being beneath the fascia lata. For the names given to these vessels by Macalister, see note ⁵ to p. 599.

²²³ *Veins Circle of the Umbilicus and Para-umbilical Veins* (*Ibid.*).—The **venous circle of the umbilicus*, which is not described by Quain or by Macalister, is an anastomotic chain of small subcutaneous veins surrounding the navel, similar to the *circulus venosus* of Haller surrounding the nipple (see note ²²⁰ above). The *para-umbilical veins*, in the peritoneum adjacent to the umbilicus and to the round ligament of the liver, form one group of the *accessory portal veins* described by Sappey; it is the communications they form with the **venous circle of the umbilicus* that are indicated in Fig. 1068. In obstruction of the portal circulation, this group of communicating veins forms one of the principal channels of collateral circulation, and it is their enlargement that constitutes the pathological condition known clinically as *caput medusa*.

²²⁴ *Subcutaneous Dorsal Veins of the Penis* (*Ibid.*).—As seen in Fig. 1068, these vessels are tributaries of the *external pudic veins* (see note ²²² above). They must be carefully distinguished from the *dorsal vein of the penis proper* (see Fig. 1069, p. 672, and Fig. 1070, p. 673), which enters the pelvis and terminates in the *prostatic venous plexus*. See also note ²²⁵ below.

²²⁵ *Vesical, Prostatic, and *Pendental Venous Plexuses* (Fig. 1069, p. 672).—The *vesical venous plexus* consists of veins which ramify over the whole surface of the bladder external to its muscular coat; they are larger and more numerous round the base of the organ, receiving here veins from the ureters, the *vasa deferentia*, and the *vesiculae seminales*, and communicating freely with the prostatic and haemorrhoidal plexuses. The *prostatic venous plexus*, which is formed largely by the breaking up of the *dorsal vein of the penis*, ramifies between the two layers of the pelvic prostatic capsule (see Appendix to Part IV., note ⁷⁹). Its connexion with the vesical plexus is so intimate that Macalister describes the two under a joint name as the *prostato-vesical plexus* (*op. cit.*, p. 428). In the female, the place of the prostatic plexus is taken by a plexus surrounding the upper part of the urethra and receiving the *dorsal vein of the clitoris*; the *vaginal plexus* also communicates freely with the vesical plexus in front and the haemorrhoidal plexus behind. Thus, the **pendental venous plexus* of Toldt (the term is little used in England) is made up in the male of veins regarded by English anatomists as belonging to the prostatic and vesical plexus; and in the female, of veins belonging to the peri-urethral, vesical, vaginal, and uterine plexuses. See Appendix to Part IV., note ¹⁰⁵.

²²⁶ (Fig. 1070, p. 673.) The *obturator fascia* (*parietal layer of the pelvic fascia*) has here split to form the channel for the internal pudic vessels, known as Alcock's canal. See Appendix, note ¹⁴⁵.

²²⁷ *Spermatic Vein* (*Ibid.*).—This is called by the author *vena spermatica interna* to distinguish it from the *vena spermatica externa*—the *cremasteric vein* of English anatomists. As a synonym for *vena spermatica interna*, the author employs the name *vena testicularis* in the male, and *vena ovarica* in the female.

²²⁸ (*Ibid.*) An account of the anomalous origin of the *obturator artery* from the *deep or inferior epigastric artery* is given in note ¹ to p. 388, in Part III., of this work.

²²⁹ **Subcutaneous Venous Plexus of the Anus* (Fig. 1072, p. 675).—This name is not used by Quain or Macalister, but the latter authority speaks of the veins under consideration as "the system of *anal (proctodeal) veins*." The plexus consists of the terminal ramification of the branches of the *inferior or external haemorrhoidal veins* (also called the *anal veins*, see note ¹⁰⁰ above), and communicates freely within the anal canal with the *haemorrhoidal or rectal venous plexus* (see Fig. 1073, p. 676), of which, indeed, the *anal venous plexus* is considered by English anatomists to form the lowest part.

²³⁰ (Fig. 1073, p. 676.) English anatomists commonly include in the *haemorrhoidal or rectal venous plexus* that which the author separately describes as the *subcutaneous venous plexus of the anus*. See Fig. 1072, p. 675, and note ²²⁹ above.

²³¹ *Uterovaginal Venous Plexus* (*Ibid.*).—English anatomists usually speak of separate *uterine* and *vaginal* venous plexuses. These plexuses, of course, communicate somewhat freely; but on the whole the venous blood from the body of the uterus passes by means of the *uterine plexus* to the *ovarian* or *pampiniform venous flexus* and the *inferior vena cava*, that from the neck of the uterus and from the vagina by means of the *vaginal plexus* to the *internal iliac vein*.

²³² **Nasofrontal Vein* (Fig. 1077, p. 682).—This name, which is not employed by Quain or by Macalister, is given by the author to the anterior extremity of the *superior ophthalmic vein*, which communicates with the *angular vein*.

²³³ *Anterior, Posterior, and Common Facial Veins* (*Ibid.*).—It will be noticed that the author's name for the *facial vein* of English anatomists is *vena facialis anterior*, and the name *anterior facial vein* is occasionally used in England also to distinguish this vein from that which is sometimes called the *posterior facial vein* (*vena facialis posterior* of the author), but which is better known as the *temporomaxillary vein* (see Fig. 1077, p. 682). This latter is a short trunk, not infrequently plexiform, formed opposite the neck of the lower jaw by the union of the *temporal* and the *internal maxillary veins*. Near the angle of the jaw the *temporomaxillary vein* divides into two parts. The *anterior division* joins the *facial vein* to form a short trunk, the *vena facialis communis* of the author, sometimes known in England also as the *common facial vein* (see Fig. 1077); this opens into the *internal jugular vein* about the level of the hyoid bone. The *posterior division* of the *temporomaxillary vein* (called by Macalister the *communicating branch* from the *temporomaxillary* to the *external jugular vein*) unites with the *posterior auricular vein* to form the *external jugular vein*. (The arrangement shown in Fig. 1077 does not correspond fully to the above description, which is, however, that generally accepted as normal.)

²³⁴ **Deltoid Veins* (*Ibid.*).—No English equivalent of the term *venae deltoidea*, used in Fig. 1077, is to be found in the works of Quain or Macalister. Examination of the figure shows that one of the veins thus denoted is the companion vein of one of the thoracic or pectoral branches of the acromiothoracic artery, while the other is a tributary of the cephalic vein.

²³⁵ (*Ibid.*) Regarding the author's use of the term *superficial cervical artery*, see Appendix, notes ¹³⁴, ¹³⁵, ¹⁷², and ²⁰⁸. The same

considerations apply to his use of the term *superficial cervical vein*.

²⁸⁶ *Ranine Vein* (Fig. 1078, p. 683).—"The lingual artery is accompanied by two small *venae comitantes*, but the largest vein of the tongue is the *ranine*, which lies external to the artery of the same name, and, after being joined by *sublingual* branches, passes backwards over the *hyoglossus* muscle with the *hypoglossal* nerve. These veins end in the *internal jugular*" (Ellis, "Demonstrations of Anatomy," 10th ed., p. 97). The *ranine vein*, called by the author, from its course adjacent to the *hypoglossal nerve*, *vena comitans nervi hypoglossi*, thus returns the greater part of the blood carried to the tongue by the *lingual artery* and its continuation the *ranine artery* (called by the author *arteria profunda linguae*); but the vein and the nerve lie superficial to, while the artery lies beneath, the *hyoglossus* muscle.

²⁸⁷ *Veins of the Temporomandibular Articulation* (*Ibid.*)—Among the tributaries of the *temporal vein*, Quain mentions "branches from a plexus which surrounds the articulation of the lower jaw, and into which one or two small veins issuing from the tympanum by the fissure of Glaser pour their contents," but he does not give these vessels any distinctive name.

²⁸⁸ *Submaxillary Fossa* (Fig. 1079, p. 684).—The name of *fossa submaxillaris* is given by the author to the space between the superficial and deep layers of the deep cervical fascia, in which the submaxillary gland lies, bounded above by the lower margin of the mandible, below by the anterior belly of the digastric muscle, and behind by the stylomaxillary ligament. In Quain's terminology this region is the *submaxillary triangle*; in Macalister's, it is the *anterior half of the digastric space*.

²⁸⁹ *Supravacuicular Fossa* (*Ibid.*).—In the terminology of English anatomists there is one *supravacuicular fossa* only, viz., the lower part of the posterior triangle of the neck. This, however, is called by the author *fossa supravacuicularis major*, the **greater supravacuicular fossa*; while he gives the name of *fossa supravacuicularis minor*, the **lesser supravacuicular fossa*, to the depression above the sternal extremity of the clavicle which corresponds to the interspace between the two heads of the sternocleidomastoid muscle.

²⁹⁰ *Basilar Venous Plexus or Basilar Sinus* (Fig. 1080, p. 685).—This is sometimes also called the *transverse sinus*, but the name is better avoided, since the occipital portion of the *lateral sinus* is known in the Continental nomenclature as *sinus transversus* (see note ²⁸⁴ above). According to Von Langer and Toldt, the *basilar venous plexus* is to be regarded as an upward extension of the **anterior internal vertebral venous plexus* (see note ²⁸⁷ above), with which it communicates through the foramen magnum. On each side it opens into the *inferior petrosal sinus*. The *basilar venous plexus* must be carefully distinguished from the *basilar or basal vein*, *vena basalis* (Rosenthali). See Fig. 1086, p. 691, and note ²⁹⁷ below.

²⁹¹ *Rete Canalis Hypoglossi and Emissarium Canalis Hypoglossi* (*Ibid.*).—According to Quain (*op. cit.*, vol. ii., part ii., p. 526), "A venous ring surrounds the hypoglossal nerve in the anterior condylar foramen, and communicates internally with the occipital sinus and intraspinal veins, externally with the vertebral vein and the plexus on the front of the spine." Von Langer and Toldt describe as normal the existence of a venous network round the hypoglossal nerve, known as the **venous rete of the anterior condylar foramen*, and shown in the right side of Fig. 1080; a variety is the existence of a single, comparatively large, emissary vein in this situation, the **emissary vein of the anterior condylar foramen* (called by Macalister the *anterior condylloid vein*), shown in the left side of Fig. 1080. See also note ²⁹¹ above.

²⁹² **Venous Rete of the Foramen Oval* (Fig. 1082, p. 687).—This name is not used by Quain or Macalister, but the former, in his description of the emissary veins, writes (vol. ii., part ii., p. 526): "One or two considerable veins descend from the cavernous sinus through the foramen oval, as well as small ones through the fibrous tissue in the foramen lacerum, to the pterygoid and pharyngeal plexuses. There is frequently another vein passing through the foramen of Vesalius."

²⁹³ *Lacuna Latares* (Fig. 1083, p. 688).—"Communicating with the superior longitudinal sinus from its anterior end as far back as the beginning of the occipital region are a number of diverticula, from 0·5 to 3 cm. long, which form a series of venous lacunae (*lacuna latares* of Key and Retzius) receiving the independent meningeal veins, and some veins from the diploë, and are invaginated by Pacchian granulations. These venous lacunae are not entirely confined to the region of the superior sinus, but some may occur in the neighbourhood of other sinuses, especially the lateral and straight sinus" (Quain, *op. cit.*, vol. iii., part i., p. 184).

²⁹⁴ (Fig. 1084, p. 689).—The *superior thyroid vein* sometimes opens directly into the *internal jugular vein*, sometimes, as in the specimen shown in Fig. 1084, into the *common facial vein*. Regarding the last-named vein, see note ²⁸⁸ above.

²⁹⁵ *Palatine Veins* (*Ibid.*).—Quain describes two palatine veins, a *superior palatine vein*, which enters the *pterygoid venous plexus*, and an *inferior palatine vein*, which returns the blood from a plexus surrounding the tonsil and from the soft palate, runs downwards beside the pharynx, and opens usually into the *facial vein* near to its proximal extremity. The *inferior palatine vein* of Quain is the vein called *vena palatina* in the author's terminology. The *sphenopalatine vein* (the companion vein of the nasal or sphenopalatine artery), like the *superior palatine vein*, joins the pterygoid venous plexus.

²⁹⁶ *Arachnoidal Villi or Pacchian Bodies* (Fig. 1085, p. 690).—The nature of these bodies having long remained uncertain, they are variously known as *Pacchian bodies* (*corpora Pacchioni*), *Pacchian glands* (*glandula Pacchioni*), and *Pacchian granulations* (*granulations Pacchioni*); Luschka, however, has shown conclusively that they are really enlarged *arachnoidal villi*.

²⁹⁷ *Basilar or Basal Vein* (*Vena Basalis Rosenthali*) (Fig. 1086, p. 691).—This vein, which winds backwards round the *crus cerebri* to open into the *vein of Galen* just before it unites with its fellow, forms an anastomotic communication between that vein and the small veins of the base of the brain, and is formed by the confluence of some of these latter, viz., the *anterior cerebral vein*, the *deep Sylvian vein*, and the *inferior striate veins*. It must not be confused with the *basilar venous plexus* or *basilar sinus*, which is shown in Fig. 1080, p. 685, and described in note ²⁹⁰ above.

²⁹⁸ *Veins of the Spinal Cord* (*Ibid.*).—Both Quain and Macalister speak generally of the *veins of the spinal cord* without any attempt at further precision in their nomenclature. According to Von Langer and Toldt (*op. cit.*, p. 599), "the veins of the spinal cord are arranged in two sets: a *superficial set*, *vena spinalis externa* (the *external spinal veins*), which, like the arteries, run on the anterior and posterior surfaces, respectively, of the spinal cord: *vena spinalis extrema anteriores et posteriores* (anterior and posterior external spinal veins); and a *deep set*, *vena spinalis interna* (the *internal spinal veins*), which are situated within the substance of the spinal cord in the neighbourhood of the central canal. The two sets communicate by horizontal branches; and other horizontal branches, running along the roots of the spinal nerves, connect the *external spinal veins* with the *internal vertebral venous plexuses*. (See note ²⁹⁹ above.)

²⁹ Deep Median Vein (Fig. 1087, p. 694).—The author, in the original German edition of this work, calls the *deep median vein* "the communicating branch between the superficial and the deep veins (*ramus anastomoticus*)."³⁰ Macalister calls it *vena mediana profunda*.

³⁰* Intercapitular Veins (Fig. 1088, p. 695).—"The palmar veins of all the fingers [*palmar digital veins*] are connected in the interdigital folds by a transverse chain of anastomoses; from each anastomotic loop a short venous trunk, the *vena intercapitularis*, passes backwards to the veins of the dorsum of the hand, and these trunks convey by far the greater portion of the blood from the *palmar digital veins*" (Von Langer and Toldt, *op. cit.*, p. 548).

³¹ Palmar Digital Veins (*Ibid.*).—As in the case of the *palmar digital arteries* (see Appendix, note ²¹³), the author distinguishes between the *vena digitales volares propria* (*proper palmar digital veins*—see Fig. 1088, p. 695), which are situate on the palmar surfaces of the fingers themselves, and the *vena digitales volares communes* (*common palmar digital veins*—see Fig. 1093, p. 700), which convey along the palmar surface of the metacarpus from the base of the fingers to the *superficial palmar venous arch* that portion of the blood that is not carried to the dorsum of the hand by the **intercapitular veins* (see note ³⁰ above).

³²* Dorsal Metacarpal Veins, etc. (Fig. 1089, p. 696).—In Quain's "Anatomy," and to a lesser extent also in Macalister's "Anatomy," the description and therefore the nomenclature of the venous system, especially as regards the veins of the extremities, is less full and less precise than that of Von Langer and Toldt, whose terminology is used in this Atlas. In the case of the *dorsal metacarpal veins*, and in several other instances, I have therefore given a literal translation of the Latin names used by the author.

³³* Accessory Cephalic Vein (*Ibid.*).—"The name *vena cephalica accessoria* is given to a vein, often of considerable size, which is mainly a continuation of the *fourth dorsal metacarpal vein [see note ³² above]; this vessel crosses the back of the forearm obliquely, running upwards and outwards to join the *radial vein* in the upper part of the forearm, or the *cephalic vein* just above the bend of the elbow" (Von Langer and Toldt, *op. cit.*, p. 549).

³⁴* Dorsal Venous Rete (or Plexus) of the Hand (*Ibid.*).—Macalister describes this plexus as consisting of two parts: "The internal dorsal plexus is formed by the union of a vein from the little finger [*vena Salvatiella*] with veins from the third and fourth interdigital cleft. The external dorsal plexus is formed by the junction of a vein from the thumb [*vena cephalica pollicis*] with veins from the index and middle fingers" (*op. cit.*, p. 278).

³⁵ Cephalic and Radial Veins (Fig. 1090, p. 697).—According to the English nomenclature, the *radial vein* begins in the outer part of the *dorsal venous plexus* of the hand, runs upwards along the outer side of the forearm to join the *median cephalic vein* a little above the elbow, in the outer bicipital groove; the trunk formed by the confluence of these vessels is in England known as the *cephalic vein*. The author gives the name of *vena cephalica* both to the *radial* and to the *cephalic veins* of English anatomists; he sometimes, however, distinguishes the former as *vena cephalica (antibrachii)*, and the latter as *vena cephalica (humeri)*.

³⁶ Basilic and Ulnar Veins (*Ibid.*).—The *anterior* and *posterior ulnar veins* of English anatomists (*anterior* and *posterior superficial ulnar veins*, according to Macalister), the former commencing on the hypothenar eminence and running upwards along the ulnar side of the front of the forearm, and the latter commencing in the inner part of the *dorsal venous plexus* of the hand and running upwards along the ulnar side of the back of the forearm, unite

as a rule a little below the elbow, the common trunk passing in front of the internal condyle to the inner bicipital groove, where by its confluence with the *median basilic vein* it forms the *basilic vein*. The author gives the name of *vena basilica* both to the *anterior ulnar* and to the *basilic veins* of English anatomists; he sometimes, however, distinguishes the former as *vena basilica (antibrachii)*, and the latter as *vena basilica (humeri)*.

³⁷* Capital Vein of the Arm (*Ibid.*).—Macalister, at the conclusion of his description of the superficial veins of the upper limb, writes (*op. cit.*, p. 278): "These veins are variable in relative size and arrangement. The basilic is the stem towards which all at first converged, and the radial originally crossed from without at the elbow to join it, receiving in its course the median and a descending branch from the outer bicipital sulcus. The adult form of the cephalic vein is a secondary development due to the dilatation of a communication between the uppermost radicle of this descending vein, and one of the thoracicohumeral veins. Intermediate forms are common." The arrangement of veins shown in the left-hand specimen of Fig. 1090 is obviously an example of the persistence of the primitive arrangement above described, the vein called *vena capitatis brachii* being really the *basilic vein*.

³⁸* Median Vein of the Elbow (*Ibid.*).—The arrangement of the veins in front of the elbow usually described as normal is for the *median vein*, after receiving the *deep median vein*, to divide into *median basilic* and *median cephalic branches*, as shown in the right-hand specimen in Fig. 1090. Nearly, if not quite, as common is the arrangement shown in the middle specimen of that figure, in which the *median vein* deviates to the ulnar side of the forearm and joins the anterior ulnar vein, while the radial vein divides well below the elbow into an outer branch, the *cephalic vein*, and an inner branch, called by the author *vena mediana cubiti*, which runs inwards and upwards across the flexure of the elbow, receiving in its course the *deep median vein*, and uniting with the trunk formed by the confluence of the *median* and *ulnar veins* to form the *basilic vein*. This is one of the "intermediate forms" alluded to by Macalister (see note ³⁷ above), and the **median vein of the elbow* in this arrangement is the representative of the *median basilic vein* in the arrangement usually described as normal. Sometimes, though the *median vein* divides in "normal" fashion into *median basilic* and *median cephalic branches*, still, an anastomotic branch, parallel with the *median basilic vein* and a little above it, passes across the front of the elbow from the *radial* or the *cephalic vein* to the *basilic vein*. This vein, when present, is called by the author *vena mediana cubiti accessoria*, the accessory median vein of the elbow (see Fig. 1087, p. 694, and Fig. 1089, p. 696).

³⁹ (Fig. 1091, p. 698.) Regarding the nomenclature of this terminal portion of the *subscapular artery*, see note ¹³⁶ above. The same considerations apply to the nomenclature of the companion vein.

⁴⁰ (Ibid.) This is the trunk formed by the union of the *anterior* and *posterior ulnar veins* (*anterior* and *posterior superficial ulnar veins*, according to Macalister). See note ³⁶ above.

⁴¹ Deep Median Vein (*Ibid.*).—The author, in the original German edition of this work, calls the *deep median vein* "communicating branch between the [deep] radial veins and the superficial veins (*ramus anastomoticus*)."⁴² Macalister calls it *vena mediana profunda*.

⁴² Perforating Arteries (Fig. 1090, p. 705).—Usually the *perforating arteries* are four in number, the *first*, *second*, *third*, or *superior*, *middle*, and *inferior perforating arteries*, being branches of the *deep femoral* or *profunda artery*, while the terminal portion of

the *profunda*, which perforates the adductor magnus muscle in series with the branches just mentioned, constitutes the *fourth perforating artery*. In the specimen shown in Fig. 1099, however, there are apparently *three* perforating arteries only, the terminal portion of the *deep femoral* or *profunda artery* constituting the *third* of the series. (This is the arrangement described as normal by Von Langer and Toldt.)

³¹³ **Femoropopliteal Vein* (Fig. 1102, p. 708).—"As the *external* or *short saphenous vein* enters the popliteal space, it is joined by an anastomotic cutaneous vein from the back of the thigh, **vena femoropoplitea*, which runs beside the small sciatic nerve for some distance, and communicates with the lowest *perforating vein*; finally the *external saphenous vein* enters the *popliteal vein*. Not infrequently, however, the **femoropopliteal vein* forms the true upward continuation of the *external saphenous vein*, so that the latter is connected with the popliteal vein only by a relatively small communicating branch, while it terminates in the *deep femoral* or *profunda vein* through the intermeditation of the lowest *perforating vein*" (Von Langer and Toldt, *op. cit.*, pp. 552, 553). This variety is described by Quain (*op. cit.*, vol. ii., part ii., p. 530), but the name **femoropopliteal vein* is not used by this author. Another fairly common variety is an enlargement of the communicating branch between the *external* and the *internal saphenous veins*, so that the former vein empties itself chiefly or entirely into the latter.

³¹⁴ *Lumbar and Aortic Lymphatic Glands and Plexuses* (Fig. 1113, p. 718).—Quain does not speak of *aortic lymphatic glands* and *plexus*, but divides the *lumbar glands* into three groups, two *lateral* and one *median*, which correspond roughly with the *lumbar* and *aortic* glands respectively of Toldt. Macalister's terminology, however, resembles that of the German author, for according to the former (*op. cit.*, p. 432) the *lumbar lymphatic plexuses* "are

united across the aorta by a median *aortic lymphatic plexus*, with about six glands in its course."

³¹⁵ *Submaxillary and Suprathyroid or Submental Lymphatic Glands* (Fig. 1115, p. 720).—"The lymphatic glands situate along the lower border of the inferior maxillary bone and on the surface of the submaxillary (salivary) gland, known as *lymphoglandula submaxillaris*, receive the lymphatic vessels from the face that run beside the facial vein, and also those from the lower gums, the floor of the mouth, and the isthmus of the fauces. One or two glands, situate between the anterior bellies of the digastric muscles, and known as *lymphoglandula submentalis*, receive the lymphatic vessels of the chin" (Von Langer and Toldt, *op. cit.*, p. 566). The last-named are apparently identical with those called by Sappey the *suprathyroid glands*, one or two small glands "placed in the centre of the neck between the anterior bellies of the two digastric muscles, and connected with the lymphatics descending from the lower lip" (Quain, *op. cit.*, vol. ii., part ii., p. 558).

³¹⁶ (Fig. 1116, p. 721). As the author recognises *two* mediastina only, *anterior* and *posterior* (see Appendix to Part IV., note ²), the lymphatic glands called by him *lymphoglandula mediastinales anteriores* comprise the *superior mediastinal* or *cardiac lymphatic glands* in addition to the *anterior mediastinal lymphatic glands* of English authors (see also note ³ to p. 482, in Part IV.).

³¹⁷ *Anterior Auricular and Parotid Lymphatic Glands* (*Ibid.*).—Writing of the *parotid lymphatic glands*, Quain states (*op. cit.*, vol. ii., part ii., p. 558) that they are "three or four, of small size . . . beneath the parotid fascia, and . . . frequently more or less embedded in the substance of the parotid gland; one, larger than the others, is situated immediately in front of the tragus of the ear." It is thus evident that the glands called by Toldt *lymphoglandula auriculares anteriores* are included by Quain among the *parotid lymphatic glands*.

INDEX

TO THE

ANGEIOLOGY



INDEX

TO THE ANGIOLOGY

Certain names in this Index have an asterisk (*) prefixed; these, as more fully explained in the Translator's Preface, being terms that form part of the English nomenclature used in this work, but which are not commonly employed by English anatomists. To other names a dagger (†) is prefixed; these are Latin names used by the author in the original work, but not included in the official nomenclature of the "Anatomische Gesellschaft." Abbreviation: App.= Appendix.

A.

- ADVENTITIA** (arterial tunic), see "Tunica"
 Alcock's canal, 601-604, and App., note ¹²⁶
 Anastomoses of the vaginal bulbs or bulbs of the vestibule with the vessels of the clitoris: arterial, 605, 607; venous, 675, 676
 Anastomosis, crucial, App., note ²³⁹ of veins, 560
 Anatomy, topographical, see "Topographical anatomy"
 Angiology, general considerations, 555-560
 †
 Angulus venosus, 583, 684, and App., note ¹²⁵
 Annuli fibrosi (cordis), 576
 Annullus ovalis, 565, 571
 impression of, in cast of the heart, 572
 Aorta, 564, 566-569, 571, 573, 577, 583, 592
 abdominal (aorta abdominalis), 592, 595, 597, 598, 644, 662, 678
 parietal branches, 592, 598
 visceral branches, asymmetric, 594-597
 symmetrical (paired), 598
 arch of, 562, 573, 577, 579, 583, 590, 592, 662
 ascending (aorta ascendens), 562, 568, 569, 573, 577, 579, 584, 586, 590, 592
 caudal, App., note ¹²⁷
 descendens, 579, 580, 584, 590, 592, 613, 664, 685
 dextra, 578
 descending thoracic, 579, 580, 584, 589, 590, 592, 613, 664, 685
 layers of its wall, 556
 right, 578
 visceral branch, 589
 sacral, 592, 597, 598, 601, 663, 673, and App., note ¹²⁷
 thoracalis, 589, 590
 ramus visceralis, 589
 Aperture, auriculoventricular, left, 569, 571, 586
 right, 570, 571, 580, 586
 Apex cordis, 562, 563, 569, 586
 of the heart, 562, 563, 569, 586
 Appendix, auricular, left, 562-564, 566-568, 571, 573, 574, 577, 581, 586, and App., note ¹¹³
 right, 562, 564, 565, 568, 571, 572, 577, 578, 580, and App., note ¹¹³
 Arachnoid, villi of, App., note ²⁹⁶
 Arch, aortic (arch of the aorta), 562, 573, 577, 579, 583, 590, 592, 662
 (arterial), palmar, deep, 634
 descending digital branches, 634, note
 superficial, 633, 639, 723
 plantar (deep), 657 and note, 660
 superficial, App., note ²⁵⁹
 ranine, 620 and App., note ¹⁹¹
 tarsal, inferior, 612
 superior, 612
 (venous), digitalis, 666
 of the foot, dorsal, 703, 710, 712
 plantar, 713
 jugular, 584, 671, 684, 698, and App., note ¹²³
 palmar, deep, 701
 superficial, 700

- Arches, aortic, 578, 579
 arterial, 578, 579
 venous, digital, 696
 visceral, 578
 Arcus aortae, 562, 573, 577, 579, 583, 590, 592, 662
 (arteriosus) plantaris, 657, 660
 rami perforantes, 651, 657
 †
 raninus, 620
 tarseus inferior, 612
 superior, 612
 venosi digitales, 696
 venosus dorsalis pedis, 703, 710, 712
 juguli, 584, 671, 684, 698
 plantaris, 713
 volaris (arteriosus) profundus, 634
 superficialis, 633, 679, 723
 venosus profundus, 701
 superficialis, 700
 Area of multiplication of lymphoid cells of lymphatic gland, 716
 Arteria, 557, 558
 Arteria vel arteriae:
 acetabuli, 644
 alveolaris inferior, 615, 619, 688
 ramus mylohyoideus, 616, 619
 alveolares superiores anteriores, 616
 alveolaris superior posterior, 616
 rami gingivales superiores, 617
 angularis, 610-612, 617
 anonyma, 579-586, 590, 592, 612, 613
 appendicularis, 596, 597, 678, 679
 arcuata, 651, 710
 audita interna, 610, 622, 623
 auricularis posterior, 611, 613-617, 619, 666
 ramus auricularis, 611, 612, 615
 occipitalis, 610, 614, 615
 auricularis profunda, 617
 axillaris, 611, 628, 629, 633, 684, 698
 rami subscapulares, 629
 basilaris, 622, 623
 rami ad pontem, 623
 brachialis, 628-634, 638, 699-701, 723
 rami cutanei, 630, 632
 bronchiales, 590, 592, 612
 rami cesophagei, 590
 buccinatoria, 616
 bulbi urethrae, 600, 601, 603
 vestibuli (vaginae), 605, 607
 canalis pterygoidei (Vidiani), 617-619
 carotis communis, 579, 590, 592, 610-613, 626, 685
 externa, 579, 610, 612, 613, 616-620, 685, 689
 interna, 578, 579, 610-613, 616-623, 685-687
 ramus caroticotympanicus, 618
 centralis retinæ, 617
 cerebelli inferior anterior, 622, 623
 posterior, 622, 623, 625
 superior, 622, 623, 625
 cerebri, 622-625
 anterior, 622-625
 media, 622-624

INDEX

- Arteria vel arteriae :**
- cerebri, posterior, 622-625
 - cervicalis ascendens, 612, 622
 - rami musculares, 614
 - rauus profundus, 615
 - rami spinales, 622
 - cervicalis, profunda, 615, 622, 666, 667, 686
 - superficialis, 590, 599, 610-612, 629, 683
 - rami cutanei, 670, 671
 - chorioidea, 623
 - ciliares posteriores, 617, 621
 - circumflexa femoris lateralis, 641-644, 658
 - ramus ascendens, 642-644, 706
 - descendens, 642-644, 706
 - circumflexa femoris medialis, 602, 642-644, 705
 - ramus profundus, 643, 644, 646-649, 704
 - ramus acetabuli, 644
 - superficialis, 641-644
 - circumflexa humeri anterior, 628, 629, 698
 - posterior, 614, 628, 629, 631
 - rami cutanei, 670
 - ilium profunda, 592, 598, 601
 - superficialis, 599, 640, 641, 671
 - scapulae, 614, 628-631, 684, 699
 - rami cutanei, 670
 - clitoridis, 604, 605, 607, 676
 - cœliaca, 578, 580, 592, 594, 595, 598, 662, 678
 - colica dextra, 596, 679
 - media, 596, 597
 - sinistra, 597, 678
 - ramus ascendens, 596
 - collateralis media, 631, 699
 - radialis, 631, 634, 635, 638
 - ulnaris inferior, 630, 632, 633, 698, 700, 701
 - superior, 630, 633, 634, 638, 698, 699
 - † colli et capitisi, 610-626
 - comitans nervi ischiadicci, 602, 646-649, 674, 675
 - communicans anterior, 623, 625
 - posterior, 623
 - coronaria (cordis) dextra, 562, 563, 569-571, 573, 590, 592
 - ramus descendens posterior, 563, 570, 584
 - coronaria (cordis) sinistra, 568-571, 573, 590
 - ramus circumflexus, 563, 567, 570, 573, 585
 - descendens anterior, 557, 562, 570, 573, 584, 585
 - cystica, 594, 595, 678
 - deferentiales, 600, 601
 - digitales (manus) dorsales, 637
 - (pedis) dorsales, 650, 651
 - plantares, 656, 657
 - rami anastomotici cum arteriis metatarsae dorsalis, 651, 656, 657
 - volares communis, 633, 634, 636, 700
 - propria, 633, 636
 - rami dorsales, 637
 - dorsalis clitoridis, 605, 607, 675, 676
 - nasi, 610-612, 616, 617, 621
 - pedis, 650, 651, 660, 710, 712
 - ramus plautarius profundus, 651, 657, 660
 - dorsalis penis, 600, 601, 603, 672, 673, 705
 - epigastrica inferior, 598, 599, 601, 644, 662, 673, 705, 707
 - rami cutanei, 599, 671
 - ramus obturatorius, 601
 - epigastrica superficialis, 599, 640-643, 671, 706
 - superior, 599, 612
 - rami cutanei, 599, 671
 - ethmoidalis anterior, 618, 619, 621, 622, 687
 - posterior, 618, 619, 621, 687
 - extremitatis superiorum et inferiorum, 627-660
 - fernalis, 598, 599, 641-644, 658, 659, 662, 705-707, 724, 725
 - rami inguinales, 640
 - musculares, 643, 649
 - frontalis, 610-612, 616, 617, 621
 - gastricae breves, 595, 678
 - gastrica dextra, 594, 595, 678

- Arteria vel arteriae :**
- gastrica sinistra, 594, 595, 662, 678
 - rami cesophagi, 594
 - gastro-duodenalis, 594, 595, 678
 - gastro-epiploïcæ, dextra et sinistra, 594, 595, 678
 - rami epiploïci, 594, 679
 - geno inferior lateralis, 619, 650, 654, 655
 - media, 640, 654, 655
 - superior lateralis, 649, 650, 654, 655
 - medialis, 641, 642, 649, 653, 655
 - suprema, 642, 643, 653-655, 706, 707
 - rami articulares, 642, 643
 - musculares, 642
 - ramus saphenous, 642, 643
 - glutæa inferior, 580, 600-602, 604, 606, 608, 646-649, 672, 674, 675, 704
 - superior, 580, 600, 601, 606, 608, 647, 672, 676
 - ramus inferior, 647
 - superior, 646-649
 - haemorrhoidalis inferior, 601, 602, 604, 605, 608, 646, 647, 649
 - rami cutanei, 645, 670
 - superior, 597, 600, 605, 607, 672, 676
 - † helicinae, 560
 - hepatica, 594, 595, 678
 - propria, 594, 595, 678
 - ramus dexter, 594
 - sinister, 594
 - hypogastrica, 592, 593, 598, 600, 601, 606-608, 672, 676, 677
 - rami parietales, 606
 - viscerales, 606
 - ileæ, 596
 - ileocolica, 596, 597, 679
 - iliaca communis, 580, 592, 598, 601, 606-608, 672, 673, 676, 677
 - externa, 580, 592, 598, 601, 606-608, 644, 662, 663, 672, 676, 677
 - ramus iliacus, 592, 593, 598, 662, 663
 - lumbalis, 592, 593
 - iliolumbaris, 592, 593, 600, 601, 606, 676
 - ramus iliacus, 592, 593, 598, 662, 663
 - lumbalis, 592, 593
 - infra-orbitalis, 611, 612, 616, 688
 - intercostales, 593, 622, 663, 664
 - rami anteriores, 589, 592, 593
 - rami cutanei anteriores (abdominales), 599
 - rami mammari mediales, 599
 - cutanei laterales (pectorales et abdominales), 589, 670
 - ramus anterior, 589
 - rami mammari laterales, 599
 - posterior, 589
 - ramus dorsalis, 589, 591, 592, 665
 - rami musculares, 590, 591
 - postiores, 589-591, 593, 622, 667
 - rami musculares, 589, 591
 - ramus cutaneus + dorsalis (lateralis), 589, 591, 614, 670
 - (medialis), 589, 591, 614, 670
 - spinalis, 589, 593, 622
 - intercostalis suprema, 590, 592, 622
 - rami dorsales, 615, 622
 - spinæ, 622
 - interossea communis, 633, 634
 - dorsalis, 634, 635, 637, 639
 - recurrens, 635
 - volaris, 634, 635, 639, 707
 - intestinales, 596, 719
 - jejunales, 596
 - labiales anteriores, 599, 604
 - posteriores, 604
 - labialis inferior, 611, 612, 616, 617
 - superior, 610-612, 616, 617
 - lacrimalis, 617, 621
 - laryngea inferior, 620
 - superior, 610, 612, 616, 620, 683, 688

Arteria *vel* arteriae:

- itenalis**, 594, 595, 598, 662, 678
- rami itenales*, 594, 595, 598
- pancreatici*, 595
- ligamenti teretis uteri**, 599, 676
- lingualis**, 610-613, 616-618, 620, 685, 686, 688, 689
 - rami dorsales lingue*, 618, 620
 - ramus hyoideus*, 610, 612, 616, 618, 620
- lumbalis**, 592, 593, 598, 600, 606, 662-664, 672
 - ramus anterior*, 593
 - dorsalis*, 593, 600, 606, 692
 - rami cutanei dorsales (mediales et laterales)*, 670
 - ramus spinalis*, 593, 600, 606
- luminalis ima**, 592, 593, 606
- malleolaris anterior lateralis**, 650-652, 708
 - medialis*, 651
 - posterior lateralis*, 654, 655, 711
 - medialis*, 653-655, 711
- mammaria interna**, 589, 599, 611, 612, 684
 - rami intercostales*, 589, 599, 612
 - perforantes*, 589, 599, 610, 612
 - rami cutanei*, 599, 671
 - mammaria*, 599
 - rami sternales*, 589
 - rami costalis lateralis (var.)*, 599
- massetericia**, 616
- maxillaris externa**, 610-613, 616-618, 682, 688, 689
 - rami glandulares*, 611
 - maxillaris interna*, 613, 616, 617, 619, 688, 689
 - mediana*, 633, 636, 700
 - mediastinales anteriores*, 589, 612
 - meningea anterior*, 610, 612, 622
 - media*, 616, 617, 619, 621, 622, 687
 - ramus meningae accessorius*, 617, 621
 - orbitalis (var.)*, 621
 - petrosus superficialis*, 621
 - meningea posterior*, 613, 619
 - mentalis*, 611, 612, 616
 - mesenterica inferior*, 595, 597, 600, 606
 - superior*, 595, 598, 678, 679
 - metacarpæ dorsales*, 635, 637, 639
 - volares*, 634, 639, 701
 - rami perforantes*, 634, 635
 - metatarsæ dorsales*, 650, 651, 660
 - rami anastomotici ad arterias digitales plantares*, 651, 656, 657
 - plantares*, 656, 657, 660
 - musculophrenica*, 599, 612
 - nasales anteriores laterales*, 619
 - septi*, 618
 - postiores laterales*, 619
 - septi*, 618
 - nasopalatina*, 618, 619
 - nutricia femoris inferior*, 649
 - superior*, 649
 - fibulae*, 655
 - tibiae*, 655
 - nutricia humeri*, 631
 - obturatoria*, 600, 601, 608, 644, 673
 - ramus anterior*, 644
 - posterior*, 644
 - pubicus*, 601
 - occipitalis*, 610, 611, 613-617, 619, 666, 683, 686
 - rami occipitales*, 614, 615
 - musculares*, 614
 - ramus descendens*, 611, 614, 615, 617
 - mastoideus*, 614, 615
 - œsophagea*, 590, 592
 - omphalomesenterica*, 578
 - ophthalmica*, 617, 621, 622, 686, 687
 - rami musculares*, 621
 - ovarica*, 607, 608, 677
 - palatina ascendens*, 613, 617-619
 - ramus tonsillaris*, 617-620
 - palatina descendens*, 617, 619
 - majore*, 619
 - rami gingivales superiores*, 619
 - palatinae minores*, 619

Arteria *vel* arterice:

- palpebrales laterales**, 612, 616, 621
- mediales*, 612
- pancreaticoduodenales**, inferior et superior, 595, 596
 - rami duodenales*, 595
 - pancreatici*, 595
- penis**, 600-603, 672, 674
- perforans prima**, 612-614, 616, 647, 649, 705, 707, 709
 - secunda*, 643, 647, 705, 707
 - tertia*, 649, 659, 705, 707, 709
- perforantes**, *rami cutanei*, 645, 648, 670
- pericardiophrenica**, 612
 - rami mediastinales*, 612
 - pericardiaci*, 612
- perinei**, 601-605, 646, 647, 674, 675
- peronæa**, 653-655, 660, 711
 - rami cutanei*, 652
 - calcanei laterales*, 652, 654, 655
 - communicantes*, 654, 655, 709
 - ramus perforans*, 650, 651, 655, 660, 710
 - pharyngea ascendens*, 613, 617-619, 686
 - rami pharyngi*, 613
 - phrenica inferior*, 592, 594, 598, 662
 - rami suprarenales superiores*, 598
 - rami suprarenales inferiores*, 598
 - phrenica superiores*, 612
- plantaris lateralis**, 653, 656, 657, 713
 - medialis*, 653, 656, 657
 - ramus profundus*, 656, 657, 713
 - superficialis*, 656, 657
- poplitea**, 643, 648, 653-655, 659, 709, 711
 - rami cutanei*, 645, 652
 - musculares*, 649
- princeps pollicis**, 634, 639, 701
- profunda brachii**, 629-631, 699
 - ramus deltoidicus*, 631
- profunda clitoridis**, 605, 607
 - femoris*, 641-644, 655, 705, 707
 - linguae*, 618, 620, 686
 - penis*, 560, 600, 601, 603, 673
 - pudendæ externæ*, 599, 640, 641
 - pudenda interna*, 600-606, 608, 646-649, 672-671, 704
 - pubimonalis*, 562, 564-569, 571, 572, 577, 579, 580, 586, 588
 - ramus dexter*, 563, 565-567, 572, 579-583, 588
 - sinister*, 562, 563, 566-568, 572, 577, 579, 581, 583-585, 588
 - radialis*, 632-637, 639, 695, 700, 701
 - ramus carpeus dorsalis*, 635, 637
 - volaris*, 634, 701
 - volaris superficialis*, 632-634, 636, 639, 700, 701
 - recurrentis radialis*, 630, 632-634, 701
 - tibialis anterior*, 650, 710
 - ulnaris*, 633, 700, 701
 - renalis*, 592, 595
 - ramus capsularis*, 598
 - sacrales laterales*, 593, 598, 600, 601, 606, 607, 662, 672, 674
 - spinales*, 593, 600, 676
 - sacralis media*, 592, 597, 598, 601, 663, 673
 - scrotales anteriores*, 640
 - postiores*, 602, 704
 - sigmoidæ*, 597
 - spermatica externa*, 598, 601, 641, 642, 662
 - interna*, 592, 597, 598, 608, 662, 678
 - splenopalatina*, 617, 619
 - spinalis anterior*, 593, 622, 623
 - posterior*, 623, 625
 - sternocleidomastoidea*, 610, 616, 685
 - stylomastoidea*, 611, 613, 616, 617, 686
 - subclavia*, 579, 582-586, 590, 592, 610-613, 622, 628, 629, 664, 683
 - subclavigularis*, 617-620, 686
 - rami gingivales inferiores*, 619
 - submentalis*, 610-612, 616, 619
 - rami glandulares*, 611
 - subscapularis*, 628-630, 684
 - rami subscapulares*, 629
 - supra-orbitalis*, 611, 612, 616, 617, 621

- Arteria vel arteriae :**
- suprarenales, inferior et media, 598
 - surales, lateralis et tmediales, 649, 653-655, 711
 - tarsae lateralis, 650, 651
 - tarsae mediales, 650, 651
 - temporales profundae, anterior et posterior, 616
 - temporales media, 616
 - superficialis, 610-613, 616, 617, 683, 688
 - rami auriculares anteriores, 610, 612
 - ramus frontalis, 610, 612
 - parietalis, 610, 612, 666
 - testicularis, 598 and note, 662, 705
 - thoracalis lateralis, 628, 629, 671
 - rami mammarii, 628
 - thoracalis suprema, 629
 - thoraco-acromialis, 610, 611, 628-630
 - rami pectorales, 611, 628, 632
 - ramus acromialis, 610, 611, 628, 630
 - deltoides, 610, 611, 628, 630
 - subclavius, 628
 - thoracodorsalis, 599, 628-630, 698
 - thymicae, 612
 - thyroidea ima (var.), 590
 - inferior, 590, 592, 611-613, 620, 626, 629, 663, 717
 - rami glandulares, 613
 - cesophagei, 592, 613, 620
 - pharyngei, 613
 - tracheales, 592, 613, 620
 - thyroidea superior, 610-613, 616, 617, 619, 620, 626, 683, 685
 - ramus anterior, 611, 612, 616
 - ramus cricothyreoides, 612, 616, 620
 - hyoideus, 611
 - posterior, 611-613, 616
 - rami pharyngei, 613
 - ramus sternocleidomastoides, 610
 - tibialis anterior, 650, 651, 654, 660, 710
 - ramus communicans, 651, 710
 - fibularis, 655
 - posterior, 654, 655, 660, 711, 713
 - rami calcanei mediales, 653, 655, 711
 - cutanei, 652, 653
 - transversa collis, 599, 610-615, 628
 - ramus ascendens, 611, 614, 615
 - descendens, 611, 614, 615
 - faciei, 610-612
 - scapulae, 590, 599, 611, 612, 628, 629, 631
 - rami cutanei, 670
 - trunci, 587-608
 - tympanica anterior, 617
 - superior, 621
 - ulnaris, 632-634, 636, 639, 698, 700, 701
 - ramus carpeus dorsalis, 634, 635, 637
 - volaris, 634, 701
 - umbilicales, 578, 580
 - urethralis, 603
 - uterina, 606-608, 677
 - ramus ovarii, 607, 608
 - tubarius, 607, 608
 - vaginales, 606, 608, 677
 - vertebralis, 579, 612, 613, 615, 622, 623, 626, 628, 685
 - rami spinales, 622, 623
 - ramus meningeus, 615, 619
 - muscularis, 615
 - vesicales, 606
 - superiores, 580, 600, 601, 672
 - vesicalis inferior, 600, 601, 608
 - volaris indicis radialis, 634, 636
 - zygomatoco-orbitalis, 610, 612
 - Artery, 557, 558
 - Artery or arteries :**
 - acetabular, 644 and App., note 224
 - acromial, 610, 611, 628, 630
 - acromiothoracic, 610 and note, 611, 628-630
 - acromial branch, 610, 611, 628, 630
 - clavicular branch, 628
 - descending or humeral branch, 610, 611, 628, 630
 - thoracic or pectoral branches, 611, 628, 682
 - Artery or arteries :
 - alveolar, see "Artery, dental"
 - anal, see "Artery, haemorrhoidal, inferior"
 - anastomotic (branch of superficial femoral artery), 642, 643, 653-655, 706, 707, and App., note 226
 - articular branches, 642, 643, and App., note 226
 - muscular branches, 642 and App., note 225
 - superficial branch, 642, 643, and App., note 226
 - anastomotica magna, 630, 632, 633, 698, 700, 701, and App., note 229
 - angular, 610-612, 617, and App., note 165
 - anterior intercostal, see "Artery, intercostal, anterior"
 - appendicular, 596, 597, 678, 679
 - articular (of the hip), 644 and App., note 224
 - (of the knee), App., notes 226 and 227
 - azygos, 649, 654, 655
 - inferior external, 649, 650, 654, 655
 - internal, 649, 653-655
 - middle, 649, 654, 655
 - superior external, 649, 650, 654, 655
 - internal, 641, 642, 649, 653-655
 - ascending cervical, 612, 622
 - palatine, 613, 617-619
 - pharyngeal, 613, 617-619, 686
 - auditory, internal, 619, 622, 623
 - auricular, 611, 612, 615
 - anterior, 610, 612
 - deep, 617
 - posterior, 611, 613-617, 619, 666
 - auricular branch, 611, 612, 615
 - mastoid or occipital branch, 610, 614, 615
 - axillary, 611, 628, 629, 683, 684, 698, and App., notes 209 and 207
 - branches of App., note 206
 - parts of App., note 207
 - basilar, 622, 623
 - transverse or pontal branches, 623 and note
 - brachial, 628-634, 638, 699-701, 723, and App., note 209
 - branches of App., note 209
 - layers of the wall, 556
 - limits of App., note 210
 - anastomotic branch, 630, 632, 633, 698, 700, 701, and App., note 209
 - cutaneous branches, 630, 632
 - brachiocephalic, see "Artery, innominate"
 - bronchial, 590, 592, 612
 - cesophageal branches, 590
 - buccal, 616
 - of the bulb (of the urethra), 600, 601, 603
 - (vaginal), 605, 607, and App., note 186
 - of the buttock, 645-649
 - calcaneal, external, 652, 654, 655, and App., note 222
 - internal, 652, 653, 655, 711, and App., note 222
 - capsular, inferior, 598
 - middle, 598
 - superior, 598
 - carotid, common, 579, 590, 592, 610-613, 626, 685
 - external, 579, 610, 612, 613, 616-620, 685, 689
 - internal, 578, 579, 610-613, 616-623, 685-687
 - carpal, radial, anterior, 634, 701
 - posterior, 635, 637
 - ulnar, anterior, 634, 701
 - posterior, 634, 635, 637
 - caudal, App., note 123
 - central, of the retina, 617
 - cerebellar, 622, note
 - anterior, 622, 623, and App., note 185
 - posterior, 622, 623, 625, and App., note 185
 - superior, 622, 623, 625, and App., note 185
 - cerebral, 622-625
 - anterior, 622-625
 - middle, 622-624
 - posterior, 622-625
 - cervical, ascending, 612, 622
 - deep branch, 615 and App., note 178
 - muscular branches, 614
 - spinal or intervertebral branches, 622

Artery or arteries:

- cervical, deep, 615, 622, 666, 667, 686
superficial, 590, 599, 610-612, 629, and App.,
notes 134, 135, 172, and 208
cutaneous branches, 670, 671
transverse, 590, 592, 599, 610-615, 628, and
App., notes 134, 135, 172, and 208
ascending branch, 611, 614, 615, and App.,
note 172
descending branch, see "Artery, scapular, posterior," and App., note 172
choroid, 623
anterior, 623
ciliary, posterior, 617, 621
circumflex (of the arm), anterior, 628, 629, 698
posterior, 614, 628, 629, 931
cutaneous branches, 670
iliac, deep, 592, 598, 601
superficial, 599, 640, 641, 671
of the thigh, external, 641-644, 658
ascending branch, 642-644, 706
descending branch, 642-644, 766
of the thigh, internal, 602, 641-644, 705,
and App., note 224
deep branch, 643, 644, 646-649, 704, and
App., note 224
superficial (muscular) branch, 641-644,
and App., note 224
clavicular, 628
of the clitoris, 604, 605, 607, 676, and App., note 156
deep, 605, 607
dorsal, 605, 607, 675, 676
coccygeal (branch of sciatic artery), 648, note
(middle), App., note 137
celiac, 578, 580, 592, 594, 595, 598, 662, 678
colic, left, 597, 678
upper or ascending branch, 596
middle, 598, 597
right, 599, 679
comes nervi ischiadicæ, 602, 646-649, 674, 675
mediani, 633, 636, 700
phrenici, 612 and App., note 174
mediastinal branches, 612
pericardial branches, 612
communicating (cerebral), anterior, 623, 625
posterior, 623
(forearm), anterior (the anterior terminal branch of the anterior interosseous artery), 634
(leg), between posterior tibial and
peroneal arteries, 654, 655,
709, and App., note 237
between anterior peroneal and
anterior tibial arteries, 651,
710
companion, of the small sciatic nerve, 708
coronary (of the heart), left, 568-571, 573, 590
anterior or descending division of, 557,
562, 570, 573, 584, 585
posterior or transverse division of, 563,
567, 570, 573, 585
(of the heart), right, 562, 563, 569-571, 573,
590, 592, and App., note 114
infundibular branch, App., note 114
marginal branch, App., note 114
posterior or descending branch, 563, 570,
584
of the lower lip (inferior coronary), 611,
612, 616, 617
of the stomach, 594, 595, 662, 678
cesophageal branches, 594
of the upper lip (superior coronary), 610-
612, 616, 617
of the corpus cavernosum (clitoris), 605, 607
(penis), 560, 600, 601, 603,
673
cremasteric, 598 and note, 601, 616, 642, 662, 705
cricothyroid, 612, 616, 620
of the crus penis, 603 and App., note 164
cystic, 594, 595, 678

Artery or arteries:

- deep cervical, 615, 622, 666, 667, 686
femoral, see "Artery, femoral, deep"
deferential, 600, 601
deltoid (branch of the superior profunda artery), 630,
631, and App., note 239
dental, anterior (superior), 616
inferior, 616, 619, 688
mylohyoid branch, 616, 619
posterior (superior), 616
superior gingival branches, 617 and App.,
note 181
diaphragmatic, see "Artery, phrenic"
digital (of the foot), dorsal, 650, 651
plantar (collateral), 656, 657, and
App., note 231
(common), 656, 657, 660,
and App., note 231
(of the hand), 633, 634, 636, 637, 700, and App.,
note 232
descending (branches of the deep palmar
arch), 634, note, 701, note .
dorsal (branch of subscapular artery), 614, 628-631,
670, 684, 689
of the foot, 650, 651, 660, 710, 712
termination of, 651 and App.,
note 230
communicating branch to (deep) plantar
arch, 651, 657, 660, and App., note 230
of the penis, 600, 601, 603, 672, 673, 705
of the tongue, see "Artery of the tongue,
dorsal"
dorsalis linguae, 618, 620, and App., note 195
nasi, see note to p. 610, and "Artery, nasal
(branch of ophthalmic artery)"
pedis, 650, 651, 660, 710, 712
scapulae, 614, 628-631, 670, 684, 699
of the dorsum of the foot, 650, 651
hand, 637
duodenal, 595
emulgent, see "Artery, renal," and note to p. 595
epigastric, inferior or deep, 598, 599, 601, 644, 662,
673, 705-707
cutaneous offsets, 599, 671
obturator branch, 601
public branch, 601
superficial, 599, 640-643, 671, 706
superior, 599, 612
cutaneous offsets, 599, 671
ethmoidal, anterior, 618, 619, 621, 622, 687
posterior, 618, 619, 621, 687
external mammary, see "Artery, mammary, ex-
ternal,"
maxillary, see "Artery, facial," and App.,
note 166
of the extremities, upper and lower, 627-660
facial, 610-613, 616-618, 682, 688, 689, and App.,
note 166
glanular branches, 611
deep, see "Artery, maxillary, internal," and
App., note 166
transverse, 610-612
Fallopian (branch of middle or great meningeal
artery), 617, 621, and App., note 168
femoral, 598, 599, 641-644, 653, 659, 662, 705-707, 724,
725, and App., notes 225 and 226
muscular branches, 643, 649
common App., note 223
deep, 641-644, 658, 705, 707
superficial, App., note 223
fibular (superior), 655 and App., note 248
of the forearm, 632-635
frontal, 610-612, 616, 617, 621, and App., note 164
gastric, see "Artery, coronary, of the stomach"
short, 595, 678
gastro-nodular, 594, 595, 678
gastro-epiploic, left, 594, 595, 678
epiploic branches, 594, 679
right, 594, 595, 678
epiploic branches, 594, 679
933

Artery or arteries:

- gingival, inferior, 619 and App., note 189
 superior, 617 and App., note 181
- gluteal, 580, 600, 601, 606, 608, 647, 672, 676, and App., note 239
 cutaneous offsets, 645, 670
 deep division, inferior branch, 646, 647, and App., note 229
 superior branch, 646-649, and App., note 229
- superficial division, App., note 229
- of the gluteal region, 645-649
- haemorrhoidal, external, see "Artery, haemorrhoidal, inferior"
 inferior, 601, 602, 604, 605, 608, 646, 647, 649
 cutaneous branches, 645, 670
 middle, App., note 143
 superior, 597, 600, 606, 607, 672, 676
- of the ham, 645, 648, 649
- of the hand, 632-635
- of the head, 609-626
 and neck, 610-626
- helicine, 560
- hepatic, 594, 595, 678, and App., note 139
 left, 594 and App., note 139
 right, 594 and App., note 139
- humeral, 610, 611, 628, 630
 transverse, see "Artery, suprascapular"
- hyoid, 610-612, 616, 618, 620
- hypogastric, 580 and App., note 129; see also "Artery, iliac, internal"
 obliterated, 601, 606-608, 663, 672, 676, and App., note 148
- ileocolic, 596, 597, 679
- iliac, common, 580, 592, 598, 601, 606-608, 672, 673, 676, 677
 external, 580, 592, 598, 601, 606-608, 614, 662, 663, 672, 676, 677
 internal, 580, 592, 593, 598, 600, 601, 606-608, 672, 676, 677, and App., note 129
 parietal branches, 606
 visceral branches, 606
- (intestinal branches of the superior mesenteric artery, supplying the ileum), 596 and note
 (or transverse) branch of the iliolumbar artery, 592, 593, 598, 662, 663
- iliolumbar, 592, 593, 600, 601, 606, 676
 iliac or transverse branch, 592, 593, 598, 662, 663
 lumbar or ascending branch, 592, 593
 spinal branch, 592, 606
- of the index finger, radial, 634, 636
- inferior palatine, 613, 617-619
- infracostal, lateral (of internal mammary), 599 and App., note 132
- inguinal, (branches of the femoral artery), 640 and note
- innominate, 565, 579-586, 590, 592, 612, 613
 intercostal, 589, 593, 622, 663, 644
 anterior branches, 589, 592, 593
 cutaneous branches, anterior (abdominal), 599
 lateral (pectoral and abdominal), 589, 670
 inner mammary branches, 589
 muscular branches, 590, 591
 posterior or dorsal branches, 589, 591, 592, 665
- intercostal, anterior, 589, 599, 612
 collateral, 589, note
 superior, 590, 592, 622
 dorsal or posterior branches, 615, 622
 spinal branches, 622
- internal auditory, 619, 622, 623
 mammary, see "Artery, mammary, internal",
 maxillary, 613, 616, 617, 619, 688, 689, and App., note 166
 pudic, see "Artery, pudic, internal"

Artery or arteries:

- interosseous, anterior, 634, 635, 639, 701
 anterior terminal branch, 634
 posterior terminal branch, 637
- comonion, 633, 634
- dorsal, 635, 637, 639, and App., note 229
 of the foot, 650, 651, 660, and App., note 239
- palmar, 634, 639, 701
 perforating branches, 634, 635
 posterior, 634, 635, 637, 639
 recurrent, 635
- interventricular, anterior, 557, 562, 570, 573, 585
 posterior, 563, 570, 584
- intestinal, 596 and note
 jejunal, 596 and note
- labial (of the face), inferior, 611, 612, 616, 617
 (vulval), anterior, 599 and App., note 138
 posterior, 604 and App., note 138
- lachrymal, 617, 621
 (branch of middle meningeal), 621 and App., note 193
- laryngeal, inferior, 620
 superior, 610 and note, 612, 616, 620, 683, 688
- of the leg, 650, 652, 655
- lingual, 610-613, 616-618, 620, 685, 686, 688, 689
 dorsal branch, see "Artery, dorsal, of the tongue"
- hyoid branch, 610, 612, 616, 618, 620
- long thoracic, 628, 629, 671, and App., note 204
- of the lower extremity, 640-660
- lumbar, 592, 593, 598, 600, 606, 662-664, 672, and App., note 129
 lowest, 592, 598, 606, and App., note 126
 anterior, ventral, or abdominal branch, 593
- cutaneous branches, 645
- posterior or dorsal branch, 593, 600, 606, 692
- cutaneous branches, 670
- spinal branch, 593, 600, 606
- of the male pelvic viscera, 600
- malleolar, external, anterior, 650-652, 708, and App., note 236
- posterior, 654, 655, 711, and App., note 236
- internal, anterior, 651 and App., note 236
 posterior, 653-655, 711, and App., note 236
- of the mamma, App., notes 133 and 137
- mammary, external, App., note 264; and see also
 "Artery, thoracic, long"
 inner (of internal mammary), 599
 internal, 583, 589, 599, 611, 612, 684, and App., notes 132 and 133
 abdominal branch, see "Artery, epigastric, superior"
 outer (of long thoracic), 599 and App., note 137
- anterior intercostal branches, 589, 599, 612
- cutaneous branches, 599, 671
- lateral branch, 599 and App., note 132
- infracostal branch, 599 and App., note 132
- mammary branches 599 and App., note 133
- perforating branches, 589, 599, 610, 612 and App., note 133
- rami mammarii, 599 and App., note 133
- sternal branches, 589
- marginal (of the heart), left, 563, note
 right, App., note 113
- masseteric, 616
- mastoid, 610, 614, 615
- maxillary, external, see "Artery, facial," and App., note 160
 internal, 613, 616, 617, 619, 688, 689, and App., note 166
- median, 633, 636, 700
- mediastinal, 589, 612
- medullary, of the femur, inferior, 649 and App., note 233
- principal, 649, and App., note 233

- Artery or arteries:
- medullary, of the femur, superior, 649, and App., note 233
 - of the fibula, 655
 - of the humerus, 631 and note
 - of the tibia, 655
 - meningeal, anterior, 618, 621, 622
 - great, 616, 617, 619, 621, 622, 687
 - middle, 616, 617, 619, 621, 622, 687
 - Fallopian (or petrosal) branch, 621 and App., note 183
 - lachrymal branch, 621 and App., note 193
 - orbital branch, 621 and App., note 193
 - petrosal (or Fallopian) branch, 621 and App., note 183
 - posterior, 613, 615, 619, and App., note 176
 - mental, 611, 612, 616
 - superficial, App., note 171
 - mesenteric, inferior, 580, 595, 597, 600, 606
 - superior, 595-598, 678, 679
 - metacarpal, App., note 230
 - metatarsal, 651, 710, and App., note 239
 - mucosiphrenic, 599, 612, and App., note 173
 - mylohyoid (branch of inferior dental artery), 616, 619
 - nasal, App., notes 184 and 185
 - anterior, 618 and App., note 184
 - external, 619
 - branch of the ophthalmic artery, 610-612, 616, 617, 621, and App., note 164
 - internal, 618, 619, 621, 622, 687, and App., note 184
 - posterior, 618 and App., note 185
 - external, 619
 - or sphenopalatine, 617, 619, and App., note 185
 - of the nasal fossa, 618, 619
 - nasopalatine, 618, 619, and App., note 185
 - of the neck, 609-626
 - nutritious (of the femur), inferior, 649 and App., note 233
 - principal, 649 and App., note 233
 - superior, 649 and App., note 233
 - of the fibula, 655
 - of the humerus, 631 and note
 - of the tibia, 655
 - obturator, 600, 601, 608, 644, 673
 - anomalous, 673 and App., note 278
 - external terminal branch, 644
 - internal terminal branch, 644
 - pubic branch, 601
 - occipital, 610, 611, 613-617, 619, 666, 683, 686
 - cranial branches (external and internal terminal branches), 614, 615
 - cervical or descending branch (principis cervicis artery), 611, 614, 615, 617
 - mastoid branch, 614, 615
 - muscular branches, 614
 - occipital branch of the posterior cerebral artery, 625
 - cesophageal, 590, 592
 - branches of the inferior thyroid artery, 592, 613, 620
 - ophthalmic, 617, 621, 622, 686, 687
 - muscular branches, 621 and App., note 192
 - orbital, 610, 612
 - branch of middle meningeal, 621 and App., note 183
 - of superficial temporal, 610, 612
 - ovarian, 607, 608, 677
 - palatine, accessory, 619 and App., note 188
 - ascending or inferior, 613, 617-619
 - tonsillar branch, 617-620, and App., note 182
 - descending or superior, 617, 619, and App., note 188
 - great, 619 and App., note 188
 - palmar, see "Arch (arterial), palmar"
 - palpebral, external, 612, 616, 621
 - internal, 612
 - Artery or arteries:
 - pancreatic (branches of the pancreaticoduodenal arteries), 595
 - pancreaticoduodenal, inferior, 595, 596
 - duodenal branches, 595
 - pancreatic branches, 595
 - superior, 595, 596
 - duodenal branches, 595
 - pancreatic branches, 595
 - pectoral, 611, 628, 682
 - of pelvic viscera, female, 606-608
 - of the penis, 600-603, 672, 674, and App., note 141
 - deep, see "Artery of the corpus cavernosum (penis)"
 - dorsal, 600, 601, 603, 672, 673, 705
 - perforating branches of sciatic, 618 and note
 - of internal mammary, 589, 599, 610, 612, and App., note 123
 - of the foot, anterior, 651, 656, 657, and App., note 241
 - posterior, 651, 657, and App., note 241
 - of the hand, inferior, App., note 216
 - superior, 634, 635, and App., note 216
 - interosseous, of the foot, first, App., note 241
 - of the thigh, App., note 312
 - first or superior, 642-644, 646, 647, 649, 705, 707, 709
 - second or middle, 643, 647, 705, 707
 - third or inferior, 649, 659, 705, 707, 709, and App., note 312
 - fourth (the terminal portion of the deep femoral or profunda artery), App., notes 233 and 312
 - cutaneous offsets of, 645, 648, 670
 - pericardial, 612
 - perineal, see "Arteria perinci" and App., note 147
 - superficial or long, 601-605, 646, 647, 674, 675, and App., note 147
 - transverse, App., notes 147, 148, 153, and 157
 - of the perineal region, female, 601, 605
 - male, 602, 603
 - peroneal, 653-655, 660, 711
 - anterior, 650, 651, 655, 660, 710
 - communicating branches, 654, 655, 709, and App., note 247
 - cutaneous offsets, 652
 - external calcaneal branches, 652, 654, 655
 - petrosal or Fallopian (branch of middle or great meningeal artery), 621 and App., note 183
 - pharyngeal, ascending, 613, 617-619, 656
 - pharyngeal branches, 613
 - phrenic, inferior, 592, 594, 598, 662
 - superior suprarenal or capsular branches, 598
 - superior, 612 and App., note 174
 - plantar, external, 653, 656, 657, 713
 - internal, 653, 656, 657
 - branches of, App., note 250
 - deep branch, 656, 657, 713, and App., note 250
 - superficial branch, 656, 657, and App., note 250
 - pontal (branches of the basilar artery), 623 and note
 - popliteal, 643, 648, 653-655, 659, 709, 711
 - cutaneous offsets, 645, 652
 - muscular branches, 649
 - of the popliteal space, 645, 648, 649
 - posterior auricular, see "Artery, auricular, posterior"
 - ciliary, 617, 621
 - scapular, see "Artery, scapular, posterior"
 - preventricular, App., note 114

- Artery or arteries:
 princeps cervicus, 611, note, 614, 615, 617, note
 pollicis, 634, 639, 701
 profunda, see "Artery, femoral, deep"
 (of the arm), inferior, 630, 633, 634, 638, 698,
 699, and App., note²⁰⁹
 superior, 629-631, 635, 638, 699,
 and App., note²⁰⁹
 communicating or deltoid
 branch, 630, note, 631
 superior, accessory, 699
 pubic, branch of the femoral artery, see "Artery,
 pudic, external"
 branch of the obturator artery, 601
 inferior, see "Artery, pudic, external, in-
 ferior"
 superficial or superior, see "Artery, pudic,
 external, superior"
 pudic, external, inferior, 599, 610, 641
 superior, 599, 610, 641
 internal, 600-608, 646-649, 672-677, 704, and
 App., note¹³⁹
 pulmonary, left, 562, 563, 566-568, 572, 577, 579, 581,
 583-585, 588
 main trunk, 562, 564-569, 571, 572, 577,
 579, 580, 586, 588
 right, 563, 565-567, 572, 579-583, 588
 pyloric, 594, 595, 678
 inferior, App., note¹³¹
 superior, App., note¹³¹
 radial, 632-637, 639, 698, 700, 701
 of the index finger, 634, 636
 recurrent, 630, 632-634, 701
 carpal branch, anterior, 634, 700
 posterior, 635, 637
 superficial volar branch, 632-634, 636, 639, 700,
 701
 radialis indicis, 634, 636
 ranine, 618, 620, 686
 rectal, middle, see "Artery, haemorrhoidal, middle"
 superior, see "Artery, haemorrhoidal, supe-
 rior"
 recurrent, anterior tibial, 650, 710
 interosseous, 635
 radial, 632-634, 701
 ulnar, 633, 700, 701
 renal, 592, 595
 suprarenal or capsular branch, 598
 retinal (central), 617
 of the round ligament of the uterus, 599, 676
 sacral, lateral, 593, 598, 600, 601, 606, 607, 662, 672,
 676
 cutaneous branches, 670
 spinal branches, 593, 600, 676
 sacral, middle, 592, 597, 598, 601, 663, 673, and App.,
 note¹³⁷
 saphenous, 640, note
 scapular, posterior, 612, 614; footnotes to pp. 590,
 592, 610, 611, 615, and 628; and App.,
 notes¹³⁴, 135, 172, and²⁰⁸
 transverse, see "Artery, suprascapular"
 sciatic, 580, 600-602, 604, 606, 608, 646-649, 672, 674,
 675, 704
 coccygeal branch, 648, note
 cutaneous offsets, 645, 670
 perforating branches, 648 and note
 scrotal, anterior, 610 and App., note¹³⁸
 posterior, 601, 602, 674, 704, and App.,
 note¹³⁸
 of the septum of the nose, 618, 619, and App.,
 notes¹³¹ and¹³⁵
 short thoracic, 629
 of the shoulder, 630, 631
 sigmoid, 597 and note
 of the sole of the foot, 656, 657
 spermatic, 592, 597, 598, 608, 662, 678, and App.,
 note¹³⁹
 sphenopalatine, 617, 619, and App., note¹³⁵
 spinal, anterior, 593, 622, 623
 posterior, 623, 625
 Artery or arteries:
 of the spinal canal, 593
 splenic, 594, 595, 598, 662, 678
 pancreatic branches, 595
 splenic branches, 594, 595, 598
 sternocleidomastoid, 610, 616, 685, and App., note¹⁶⁹
 stylomasloid, 611, 613, 616, 617, 656
 subclavian, 565, 579, 582-586, 590, 592, 610-613, 622,
 628, 629, 664, 683
 the origin of its branches, App.,
 notes¹³⁴, 172, and²⁰⁸
 sublingual, 617-620, 686
 submental, 610-612, 616, 619
 glandular branches, 611
 subscapular, 628-630, 684, and App., note²⁰³
 long, see "Artery, subscapular"
 short, App., note²⁰³
 subscapular branches, 629
 superficial cervical, see "Artery, cervical, super-
 ficial"
 mental, App., note¹⁷¹
 superficialis volce, 632-634, 636, 639, 700, 701
 superior intercostal, see "Artery, intercostal, supe-
 rior"
 thoracic, 629
 suprahyoidian, see "Artery, lingual, hyoid branch,"
 and App., note¹⁶⁷
 supra-orbital, 611, 612, 616, 617, 621
 suprarenal, inferior, 598
 middle, 598
 superior, 598
 suprascapular, 590, 599, 611, 612, 628, 629, 631
 cutaneous branches, 670
 sural, external, 649, 653-655, 711, and App., note²³²
 internal, 649, 653-655, 711, and App., note²³²
 superficial, 648, 652, and App., note²³²
 tarsal, external, 650, 651, and App., note²³⁵
 internal, 650, 651, and App., note²³⁵
 temporal, anterior, 610, 612
 deep anterior, 616
 posterior, 616
 middle, 616
 middle (deep), 616
 posterior, 610, 612, 666
 superficial, 610-613, 616, 617, 683, 688, and
 App., note¹⁶⁸
 anterior auricular branches, 610, 612
 temporal branch, 610, 612
 orbital or zygomatico-orbital branch,
 610, 612
 posterior temporal branch, 610, 612,
 666
 of the thigh, 610-615, 618, 649
 thymic, 611 and App., note¹⁷⁵
 thoracic, 611, 628, 682
 long, 628, 629, 671, and App., note²⁰⁶
 external mammary branches, 628 and
 App., notes¹³⁷ and²⁰⁶
 short, 629
 superior, 629
 thoracico-acromial, see "Artery, acromiothoracic"
 thoracodorsal, App., note¹³⁹; and see also "Artery,
 subscapular," and "Artery thoracodorsalis"
 of the thumb, large, 634, 639, 701
 thyroid, inferior, 590, 592, 611-613, 620, 626, 629, 663,
 717
 glandular branches, 613
 cesophageal branches, 592, 613, 620
 pharyngeal branches, 613
 tracheal branches, 592, 613, 620
 lowest (var.), 590, and note
 superior, 610-613, 616, 617, 619, 620, 626, 683,
 685
 anterior branch, 611, 612, 616
 hyoid branch, 611
 inferior laryngeal branch, 612, 616, 620
 posterior branch, 611-613, 616
 pharyngeal branches, 613
 sternocleidomastoid branch, 610, and
 App., note¹⁶⁹

Artery or arteries:
 tibial, anterior, 650, 651, 654, 660, 710
 communicating branch, 651, 710
 fibular branch, 655 and App., note 248
 posterior, 654, 655, 660, 711, 713
 cutaneous offsets, 652, 653
 internal calcaneal branches, 652, note, 653,
 655, 711
 recurrent, anterior, 650, 710
 of the tongue, see "Artery, lingual"
 deep, see "Artery, ranine"
 dorsal, 618, 620
 tonsillar (branch of ascending or inferior palatine artery), 617-620 and App., note 182
 (branch of facial artery), App., note 182
 tracheal, 592, 613, 620
 transverse cervical, see "Artery, cervical, transverse"
 facial, see "Artery, facial, transverse"
 humeral, see "Artery, suprascapular"
 of the pons Varolii, 623, note
 scapular, see "Artery, suprascapular"
 of the trunk, 587-608
 tympanic, anterior, 617 and App., note 183
 (branch of internal carotid artery), 617,
 618, and App., note 183
 inferior, 617 and App., note 183
 posterior, 617 and App., note 183
 superior, 617, 621, and App., note 183
 ulnar, 632-634, 636, 639, 693, 700, 701
 recurrent, 633, 700, 701
 carpal branch, anterior, 634, 701
 posterior, 634, 635, 637
 deep or communicating branch, 633, 634
 umbilical, 578, 580
 of the upper arm, 630, 631
 extremity, 627-639
 urethral, 603 and App., note 182
 uterine, 606-608, 677
 ovarian branch, 607, 608
 tubal branch, 607, 608
 vaginal, 606-608, 677, and App., notes 160 and 163
 of the vas deferens, 600, 601
 of the vermiciform appendix, 596, 597, 678, 679
 vertebral, 579, 612, 613, 615, 622, 623, 626, 628,
 629
 lateral spinal branches, 622, 623
 muscular branch, 615
 of the vertebral canal, 593
 vesical, 606 and App., note 162
 inferior, 600, 601, 608, and App., notes 143 and
 162
 middle haemorrhoidal or middle rectal
 branch, 600 and App., note 143
 superior, 580, 600, 601, 672, and App.,
 note 162
 vesicoprostatic, see "Artery, vesical, inferior," and
 also App., note 142
 vesicovaginal, App., note 163
 Vidian, 617-619
 volar, superficial, 632-634, 636, 639, 700, 701
 zygomatico-orbital, 610, 612

Atrium cordis, 578
 (cordis) dextrum, 562-565, 572, 574, 575, 584, 586
 sinistrum, 563, 566, 567, 571, 573-575, 581,
 584
 of the left auricle, 563, 566, 567, 571, 573-575, 581,
 584, and App., note 113
 of the right auricle, 562-565, 572, 574, 575, 584, 586,
 and App., note 113

Auricle of the heart, see "Atrium," and also App., note 113
 primary, 577, 578

Auricula (cordis) dextra, 562, 564, 565, 568, 571, 572, 577, 578,
 580
 sinistra, 562-564, 566-568, 571, 573, 574, 577,
 581, 586

Auricular portion of the heart, App., note 113

Axil, celiac, 578, 580, 592, 594, 595, 598, 662, 678
 costocervical, 613, 622, 663
 thyroid, 583, 590, 592, 611, 613, 622, 628

Base of the heart, 566, note, and App., note 113
 Basis cordis, 566
 Borders of the heart (upper or left, and lower or right), 562,
 note
 Botailo, duct of, see "Ductus arteriosus"
 ligament of, see "Ligamentum arteriosum"
 Bifurcation of the abdominal aorta, 595
 of the pulmonary artery, 564, 568, 569
 Bodies, Pacchioniæ, 690 and App., note 236
 Body, intercarotic, 619, note
 Branches, hepatic, of the umbilical vein, 580, 581
 Bulb, aortic (of the immature heart), 577-579
 of the internal jugular vein, inferior, 582, 583, 684-686,
 and App., note 121
 (or sinus) of the internal jugular vein, superior, 685
 and App., note 121
 Bulbs, vaginal (or bulbs of the vestibule), their anastomoses
 with the vessels of the clitoris: arterial, 605, 607; venous,
 675, 676
 Bulbus aortæ, 569, 590, 592
 arteriosus, 577-579
 venæ jugularis inferior, 582, 583, 684-686
 superior, 685
 vestibuli (vaginae), 605, 607, 675, 676

C.

Canal, Alcock's, 601-604, and App., note 145
 Hunter's, 642 and App., note 233
 popliteal, 649, 653, and App., notes 234 and 245
 Capillaries, 558
 arterial, 558
 lymphatic, 559
 venous, 558
 Capsule, fibrous, of the corpus cavernosum, 560
 of lymphatic glands, 716, 717
 Caput Meduse, App., note 273
 Cast of the interior of the left side of the heart, 573
 of the right side of the heart, 572
 Caudal aorta, App., note 127
 Cellular reticulum of lymphatic glands, 716, 717
 Chordæ tendinæ, 564, 566, 567
 *Circle, venous, of the umbilicus, 671 and App., note 273
 connexions with the para-
 umbilical veins of
 Sappey, 671 and App.,
 note 273

of Willis, arterial, 623
 Circulus arteriosus (Willisi), 623
 venosus of Haller, App., note 273
 Cisterna chylæ, 718
 Coat, adventitious, 556, 557
 external, 556, 556
 internal, 556, 557
 middle, 556, 557
 Columnæ carneæ, 567, note
 Communicating branch between the right and the left
 superior vena cava, 555 and note
 *Cone of the heart, 556, note, and App., note 113
 Confluence of the sinuses, 667 and App., note 266
 Confluens sinuum, 667
 Conus arteriosus, 562, 564, 565, 570, 572, 576
 Cor, 561-577
 Cords, lymphoid, 716, 717
 medullary, 716, 717
 *Corona cordis, 566, note, and App., note 118
 Corpora Arantii of semilunar valves, aortic, 568, 571
 pulmonary, 564, 571
 Pachioniæ, App., note 236
 Corpus cavernosum penis, 560
 Cortex of lymphatic glands, 716, 717
 *Crest, supraventricular, 564 and note
 impression of, in a cast of the heart,
 572
 Crista supraventricularis, 564
 terminalis, 571 and note
 *Crown of the heart, 566, note, and App., note 113

Crucial anastomosis, App., note 230
 Cusp of mitral or bicuspid valve, anterior, 566, note, 567,
 568, 570
 aortic, 566, note, 567,
 568, 570
 posterior, 566, note, 567,
 568, 570
 of tricuspid valve, anterior, 564 and note, 565, 568, 570
 infundibular, 564, note
 internal, 564 and note, 565, 568, 570
 left, 564, note
 posterior, 564 and note, 565, 568, 570
 right, 564, note
 septal, 564, note

D.

Development of the heart, 577
 of the vascular system, 578-581
 Diaphragm, pelvic, App., note 140
 * urogenital, App., note 142
 Duct of Cuvier, 578, 579
 lymphatic, right, 718, 721
 thoracic, 664, 685, 718
 Ductus arteriosus (Botalli), 577, 579, 581
 + Cuvieri, 578, 579
 lymphaticus dexter, 718, 721
 thoracicus, 664, 685, 718
 venosus (Arantii), 580, 581

E.

† Emissarium canalis hypoglossi (var.), 685
 condyloideum, 666, 667
 mastoideum, 666, 667
 occipitale, 667
 Emissary veins, see "Veins, emissary"
 Endocardium, 570
 Epicardium, 565 and note, 566, 568, 570, 571, 584, 585
 Eustachius, valve of, 565, 571, 572, 577, 580

F.

Facies diaphragmatica (cordis), 563, 569
 sternocostalis (cordis), 562
 * Fascia, interosseous, dorsal, 664 and App., note 236
 * plantar, 660 and App., note 236
 Fold of Marshall, 584 and App., notes 11⁷ and 12²
 vestigial, 584 and App., notes 11⁷ and 12²
 Folds, fatty, of the epicardium, 565
 Flaps, semilunar or sigmoid, of the aortic valve, 564, note,
 568, 570, 576
 of the pulmonary valve, 564
 and note, 570, 571
 of valves, see "Cusps"

Fleshy pons, 564, note

Follicles, cortical, of lymphatic glands, 716, 717

† Foramen ovale (cordis), 577, 580

Foramina of Thebesius, 565
 venarum minimarum (Thebesii), 565

Fossa ovalis, 565, 571

 impression of, in a cast of the heart, 572

Fovea ovalis, 565, 571, 572

Furrow, auriculoventricular, 563, 565, 569, 572-575, 586
 interauricular, posterior, 563
 interventricular, anterior, 564, 570, 574, 576, 577,
 586
 posterior, 566, 569, 570, 575, 576

G.

General considerations regarding angiography, 555-560
 Glan, carotid, 619 and note
 Glands, lymphatic, see "Lymphatic glands"
 Pacchioni, App., note 296
 Glandula intercarotica, 619, note
 Glandula Pacchioni, App., note 296
 Glomerulus, carotid, 619 and note

Glomus caroticum, 619
 Granulations arachnoideales (Pacchioni), 689 and App.,
 note 296
 Granulations, Pacchioni, App., note 296
 Groove (see also "Furrow" and "Sinus"):
 auriculoventricular, 563, 565, 569, 572-575, 586
 interauricular, posterior, 563
 interventricular, anterior, 564, 570, 574, 576, 577, 586
 posterior, 566, 569, 570, 575, 576

H.

Heart, the, 561-577
 development of, 577
 Hepatic branches of the umbilical vein, 580, 581
 Hilum of lymphatic gland, 716 and note, 717
 Hunter's canal, see "Canal, Hunter's"

I.

Incisa apicis cordis, 562, 563, 565
 Infundibulum of the right ventricle, 562, 564, 565, 570, 572,
 576
 Intercarotic body, 619, note
 Intima (arterial tunic), 556, 557
 Isthmus aortæ, 569, 573
 of Vieussens, 565, 571, 572

J.

* Jugular venous arch, 584 and App., note 123

L.

Lacteals, 719
 Lacunæ corporis cavernosi, 560
 + latérales sinus sagittalis superioris, 688-690
 venous (lacunæ laterales), of the superior longitudinal sinus, 688-690
 Layers of the walls of the bloodvessels, 556, 557
 Ligament or ligaments:
 sternoepicardial, superior and inferior, 582, 583
 umbilical, lateral, 601, 606-608, 663, 672, 676, and
 App., note 148
 median, 580
 of the vena cava (inferior), 581
 Ligamentum vel ligamenta:
 arteriosum, 562-564, 567-569, 583-585
 sternopericardiacum, tenuifer et tenuiperius, 582,
 583
 umbilicale laterale, 601, 606-608, 663, 672, 676
 medium, 580
 venæ cavae (inferioris), 581
 + Limbus foranini ovalis, 577
 fosse ovalis (Vieussennii), 565, 571
 of Vieussens, 577
 Lower, tubercle of, 565, 572, 580
 Lunula of the semilunar valves, aortic, 568
 pulmonary, 564
 valvularum semilunarium aortæ, 568
 arteriae pulmonalis, 564
 Lymphatic duct, right, 718, 721
 glands, 716, 717
 aortic, 718 and App., note 314
 auricular, anterior, 721 and App., note 317
 posterior, 720 and note, 721
 axillary, 718, 720, 721 and note, 722
 cervical, deep, inferior, 626, 721
 superior, 721
 superficial, 633, 670
 cubital, 723
 superficial, 722, 723
 femoral, see "Lymphatic glands, inguinal, superficial, inferior"
 of the femoral ring (gland of Rosenmüller), 725
 hilum of, 716, note, 717
 iliac, 718
 internal, 716

Lymphatic glands, infraclavicular, 721, note
inguinal, deep, 718, 724, 725
superficial, inferior, 599, 640,
671, 702, 718,
724-726, 728
superior, 599, 640,
671, 702, 718,
724-726

intercostal, 718
lumbar, 718 and App., note 314
mastoid, 720, note, 721
mesenteric, 716, 719
parotid, 721 and App., note 317
pectoral, 721 and note
popliteal, 727
of Rosenmüller, 725
sacral, 718
structure of, 716, 717

submaxillary, 610, 720, 721, and App.,
note 315

submental, 720, 721, and App., note 315
subscapular, 721, note
suprarenal, 720, 721, and App., note 315

plexus, aortic, 718 and App., note 314
axillary, 718, 721
iliac, external, 718
inguinal, deep, 718
superficial, 718, 724
jugular, 721
lumbar, 718 and App., note 314
mammary, 721
sacral, median, 718

system, 715-728
trunk, axillary, 718, note, 721, note
intestinal, 718
jugular, 718, 721
lumbar, 718
subclavian, 718, 721
vessels of the arm, 720, 723
cervical, 720, 721
deep, 718, 721, 723, 727
of the external genital organs, female,
725, 728
of the external genital organs, male, 724,
726
of the head, 720, 721
of the leg, 726, 727
of the perineum, 728
superficial, 718, 720, 722, 728
thoracic, 720-722

Lymphatics, 559
Lymph-channels, 715, 717
Lymphoglandulae, 716, 717
aorticae, 718
auriculares anteriores, 721
posteriores, 720, 721
axillares, 718, 720-722
cervicales profundae inferiores, 626, 721
superiores, 721
superficiales, 683, 720
cubitales profundae, 723
superficiales, 722, 723
hypogastricae, 716
iliaca, 718
inguinales, 599, 640, 671, 702, 718, 724-
726
intercostales, 718
lumbales, 718
mesentericae, 716, 719
occipitales, 720, 721
parotideæ, 721
pectorales, 721
poplitea, 727
sacræ, 718
subinguinales profundæ, 718, 724, 725
superficiales, 599, 640, 671,
702, 718, 724-726, 728
submaxillares, 610, 721
submentales, 720, 721

† Lymph-sinuses, 716, 717

Margo acutus cordis, 562, note
obtusus cordis, 562, note
Marshall, fold of, 584 and App., notes 117 and 122
vein of, 583-583 and App., notes 117 and 122

Media (arterial tunic), 556, 557

Medulla of lymphatic glands, 716, 717

Muscle, soleus, note on, 654

Musculi papillares, 564-568, 570
pectinati, 571 and note

Myocardium, 570

N.

Network, venous, 558
subcutaneous, of the anterior surface of
the upper arm, 694
of the dorsal surface of the
forearm, 696
of the occipital region, 666
of the palmar surfaces of
the fingers, 695
of the palmar surface of
the forearm, 695
of the thigh (anterior sur-
face), 702

Nodules, cortical, of lymphatic glands, 716, 717
of semilunar valves, aortic, 568, 571
pulmonary, 568, 571

Noduli valvularum semilunarium aortæ (Arantii), 568, 571
arteriæ pulmonalis, 564,
571

*Notch of the heart, apical, 562 and note, 563, 576

O.

Orifice, aortic, 568, 570, 586
mitral, 569, 571, 586
pulmonary, 570, 571, 586
tricuspid, 570, 571, 580, 586

Os cordis, 576, note

Ostium arteriosum dextrum, 570, 586
sinistrum, 568, 570, 586
venosum dextrum, 570, 571, 580, 586
sinistrum, 569, 571, 586

Outlines, projection, of the heart and its orifices, with the
great vessels, 586

P.

Pacchionian bodies, 689, 690, and App., note 296

Pars membranacea septi atriorum, 571
ventricularum, 568

Pericardium, 565 and note, 566, 568, 570, 571, 582-585, 612

Pilasters, 567, note

Plexus, lymphatic, see "Lymphatic plexus"
submucoës, 559

lymphaticus aorticus, 718
axillaris, 718, 721
iliacus externus, 718
inguinalis, profundus, 718
superficialis, 718, 724
jugularis, 721
lumbalis, 718
sacræ medius, 718

presacral venous, 662, 663
venous (see also "Network, venous"):
basilar, 685, 687, and App., note 290
haemorrhoidal or rectal, 675, 676, and App.,
note 293

* of the hand, dorsal, 696 and App., note 304
palmar, 695, 697
of the nipple, 671 and App., note 270

ovarian, 666, 677

pampiniform, 598, 606, 662, 677, 795

peri-urethral (of the female), App., note 275

pharyngeal, 685

pterygoid, 682, note, 688, 689, and App.,
note 293

presacral, 662, 663
prostatic, App., note 275

- Plexus, venous, prostaticovesical, App., note 275
 pudendal, 672, 673, and App., note 275
 of the round ligament of the uterus, 676 and
 note
 spermatic, 598, 662, 705
 spinal, dorsal, App., note 290
 situate behind the vaginal bulb or bulb of
 the vestibule, 677
 subcutaneous, of the anus, 675 and App.,
 note 279
 surrounding Stensen's duct, 682
 the vertebral artery, 667
 uterine, App., notes 275 and 281
 uterovaginal, 676, 677, and App., note 281
 vaginal, App., notes 275 and 281
 vertebral, external, anterior, 669 and note
 posterior, 665, 666, 668,
 669, and App., note 269
 internal, anterior, 668, 669, and
 App., note 267
 posterior, 667-669 and
 App., note 263
 vesical, 672, 676, and App., note 275
- Plexus venosus *vel* plexus venosi:
 basilaris, 685, 687
 haemorrhoidal, 676
 mammae, 671
 ovaricus, 666, 677
 pampiniformis, 598, 662, 705
 pharyngeus, 685
 pithegoideus, 688, 689
 pudendal, 672, 673
 sacralis anterior, 662, 663
 subcutaneus ani, 675
 uterovaginal, 676, 677
 vertebralis, 669
 externi, 626, 665, 666
 (externi) anteriores, 669
 posteriores, 665, 666,
 668, 669
 interni, 626, 667, 668
 anteriores, 668, 669
 posteriores, 667-669
 vesicalis, 672, 676
- Plexuses, venous, of the vertebral column, App., note 250
 Plica venae cavae sinistrae, 584 and App., note 122
 Pons, fleshy, 564, note
 Ponticulus hepatis, 581
 Popliteal artery, division of, App., note 210
 lower limit of, App., note 245
 Pouches, valvular, of the veins, 560
 Projection-outlines of the heart and its orifices, with the
 great vessels, 586
- R.**
- Radicle, venous, 558
 Ramification, capillary, 558
 subcapillary, 558
 † Rami cutanei (arteriosi), 630, 632, 640, 641
 Ramus cervicis princeps arteriae occipitalis, 611, 614, 615,
 617
 communicans, 651, 654, 655, 708-711
 Ranine arch, 620 and App., note 191
 Receptaculum chyl., 718
 Rete, arterial, acromial, 610, 631, 682, and App., note 170
 articular, of the knee, 642 and note, 643,
 653, and App., notes 229 and 227
 calcaneal, 652, 653-657, and App., note 242
 carpal, anterior, 634 and App., note 215
 posterior, 635, 637, and App., note 219
 of the foot, dorsal, 651 and App., note 239
 plantar, 652 and App., note 243
 malleolar, external, 650-652, and App.,
 note 237
 internal, 651 and App., note 237
 of the olecranon (rete olecrani), 631, 635, 699,
 and App., note 212
 patellar, 641, 642, 650, and App., note 225
 trochanteric, 646, 649, and App., note 230
- Rete (arteriosum)
 acromiale, 610, 631, 682
 articulare cubiti, 631, 635, 699
 gemm, 642, 643, 655
 calcaneum, 652-657
 carpi dorsale, 635, 637
 volare, 634
 dorsale pedis, 651
 malleolare laterale, 650-652
 mediale, 651
 patellæ, 641, 650
 plantare, 652
 trochantericum, 646, 649
- † venosum, 558
 calcaneum, 703, 711, 713
 canalis hypoglossi, 685
 cutaneum abdominis, 671
 pectoris, 671
 dorsale manus, 666
 pedis, 703, 712
 foraminis ovalis, 687
 plantare, 703
 volare manus, 695, 697
- * venous, 558
 of the anterior condylar foramen, 685 and
 App., note 311
 calcaneal, 703, 711, 713
 of the foot, dorsal, 703, 712
 plantar, 703
 of the foramen ovale, 687 and App., note 292
 of the hand, dorsal, 690 and App., note 304
 palmar, 695, 697
 of the intervertebral foramen, 626, 667, 668
 of the vertebra, 665, 669, and App., note 269
 † Retia venosa foraminum intervertebratum, 626, 667, 668
 vertebrarum, 668, 669
 Reticulum, cellular, of lymphatic glands, 716, 717
 Ring, fibrous, of the mitral orifice, 576 and note
 tendinous, of the mitral orifice, 576 and note
 of the tricuspid orifice, 576 and note
 * umbilical, 580, 581, and App., note 119
 Rudiment of the liver, 578
- S.**
- * Saccus reuniens, 578 and App., note 115
 Sacral aorta, 592, 597, 598, 610, 663, 673, and App., note 127
 Sections, transverse, of the elbow, 638
 of the forearm, 639
 of the foot, 660
 of the hand, 639
 of the knee, 639
 of the leg, 660
 of the thigh, 658, 659
 of the upper arm, 638
- Septum atriorum, 565, 567, 569-572
 interauricular, 565, 567, 569-572
 interventricular, 564, 566-568, 570, 572, 573
 membranaceum ventriculorum, 568
 muscular ventriculorum, 568
 of the sheath of the bloodvessels, 560
 vagina vasorum (femoralium), 566
 ventriculorum, 564, 566-568, 570, 572, 573
 Sheath of the bloodvessels, 560, 626
 septum of, 560
- femoral, 560
- Sinus or sinuses:
 aortæ (Valsalvæ), 570, 573
 arterie pulmonalis, 562
 basilar, 685, 687, and App., note 290
 cavernous (s. cavernosus), 686, 687
 circular (s. circularis), 687
 confluence of, 667 and App., note 256
 coronary (s. coronarius), 563-566, 569, 570, 572, 575,
 579, 584
 of the corpus cavernosum, 560
 duræ matris, 667
 intercavernosus, anterior (s. intercavernosus anterior),
 687

Sinus or sinuses:

- intercavernous, posterior (s. intercavernosus posterior), 687
- lateral, 667, 689, 691, and App., note 264
- longitudinal, superior, 690, 691
- meningeal, 667, 685-691
- occipital (s. occipitalis), 667, 691
- petrosal, inferior (s. petrosus inferior), 685
- superior (s. petrosus superior), 685, 691
- of the pulmonary artery, 562 and App., note 112
- rectus, 691
- reuniens (saccus reuniens), 578
- sagittalis superior, 690, 691
- sigmoid (s. sigmoideus), 667, 685, 686, and App., note 264
- sphenoparietal (s. sphenoparietalis), 687, 688
- straight, 691
- tentorial, 691
- transverse, of the pericardium, 568, 571
- transversus, 667, 689, 691
- pericardii, 568, 571
- of Valsalva, 570, 573, and App., note 112
- valvular, of the veins, 560
- venarum (cavarum), 563, 571, 584, 585
- venous of the right auricle, 563, 571, 584, 585
- venous, of the cranium, 667, 685-691
- confidence of (torcular Herophili), 667 and App., note 266

* vertebral, longitudinal, 626, 668, 669, and App., note 200

vertebrales longitudinales, 626, 668, 669

Space, undefended, of the interventricular septum, 568, note

Spaces of the corpus cavernosum, intertrabecular, 560

Substance, cortical, of lymphatic glands, 716, 717

medullary, of lymphatic glands, 716, 717

Substantia corticata, 716, 717

medullaris, 716, 717

Sulcus coronarius, 563, 565, 569, 572-575, 586

† interventricularis, 577

longitudinalis anterior, 564, 570, 574, 576, 577, 586

posterior, 563, 566, 569, 570, 575, 576

terminalis atrii dextri, 563 and note

terminalis of the right auricle, 563 and App., note 115

Surface of the heart, anterior, 562

posterior, 563, 569

System, lymphatic, 715-728

portal, of veins, 580, 581, 678

Systema lymphaticum, 715-728

T.

Tænia terminalis, 571, note

Thebesius, foramina of, 565

valve of, 565, 569, 570, 577

Thoracic duct, 664, 685, 718

Tissue, connective, of the hilum of lymphatic glands, 716, 717

Topographical anatomy (see also "Sections, transverse"):

of the gluteal region, 648

of the popliteal region, 648

of Scarpa's triangle, 641

Torcular Herophili, 667 and App., note 200

Trabeculae carneæ, 567, 568

corporis cavernosus, 560

of lymphatic glands, 716, 717

tendineæ, 567

Trigona fibrosa, 576 and note

† Tripus cœliacus (Halleri), 595; see also "Axis, cœliac"

Truncus vel trunci :

† arteriosus, 577-579

costocervicalis, 613, 622, 663

intestinalis, 718

jugularis, 718, 721

lumbales, 718

subclavius, 718, 721

thyroceravicularis, 583, 590, 592, 611, 613, 622, 628

Trunks, lymphatic, 559

(For the individual trunks, axillary, jugular, etc., see under "Lymphatic trunk")

INDEX

Tubercle of Lower, 565, 580

impression of, in cast of heart, 572

Tuberculum intervenosum (Lower), 565, 580

Tunica albuginea corporis cavernosus, 560

externa (adventicia), 556, 557

intima, 556, 557

media, 556, 557

Tunics, arterial, see under "Tunica"

U.

Undefended space of the interventricular septum, 568, note

Urachus, 580

V.

Vagina vasorum, 560, 626

Valve, aortic, 564, note, 568, 570, 576

bicuspid, 566 and note, 567, 568, 570, 576

Eustachian, 565, 571, 572, 573, 580

of the foramen ovale, 567, 571, 577, 580

mitral, 566 and note, 567, 568, 570, 576

pulmonary, 564 and note, 570, 571

Thebesian, 565, 569, 570, 577

tricuspid, 564 and note, 565, 568, 570, 576

Valves of the veins, 560

Valvula vel valvula :

bicuspidalis (mitralis), 566-568, 570, 576

cuspis anterior, 567, 568, 570

posterior, 566-568, 570

foraminis ovalis, 567, 571, 577, 580

semilunares aortæ, 576

valvula semilunaris dextra, 570

posterior, 568, 570

sinistra, 568, 570

semilunares arterias pulmonalis, 564

valvula semilunaris anterior, 564, 570, 571

dextra, 570

sinistra, 564, 570

sinistra sacci venosi, 567, 571, 577, 580

sinus coronariorum (Thebesii), 565, 569, 570, 577

tricuspidalis, 564, 565, 568, 570, 576

cuspis anterior, 564, 565, 568, 570

medialis, 564, 565, 568, 570

posterior, 564, 565, 568, 570

vena cava (inferioris, Eustachii), 565, 571, 572, 577, 580

Vasa afferentia, 716, 717

brevia of the stomach, 595, 678

capillaria, 558

chylifera, 719

differentia, 716, 717

lymphatica, 559

profunda, 718, 721, 723, 727

superficialia, 718, 720, 722, 728

vasorum, 560

Vein, 557, 558

Vein or veins :

acromial, 682-684

acromiothoracic, thoracic or pectoral branches, 682

alveolar, inferior, 688

anal, see "Veins, haemorrhoidal, inferior or external,"

and also App., note 229

anastomosis of, 566

anastomotic (of the thigh), 706, 707

anastomotica magna, 698, 700, 701

angular, 682-684 and App., note 229

appendicular, 678, 679

articular (of knee), external, inferior, 711

superior, 711

internal, inferior, 711

superior, 711

auricular, anterior, 682, 684

posterior, 666, 682

axillary, 683, 684, 698

azygos, 563, 565-567, 572, 579, 580, 582, 663, 664, 685, 718

large, 563, 565-567, 572, 579, 580, 582, 663, 664,

685, 718

left lower, 584, 585, 663, 664, 685, 718

- Vein or veins:
 azygos, left upper, 579, 584, 663, 664, 685
 right, 563, 565-567, 572, 579, 580, 582, 663, 664,
 685, 718
 small, 579, 584, 585, 663, 664, 685, 718
 basal, 691 and App., note 297
 basilar, 691 and App., note 297
 basilic, 638, 683, 684, 694, 697, 698, 722, 723, and App.,
 note 306
 basivertebral, 668, 669, and App., note 298
 of the bodies of the vertebrae, App., note 298
 brachial, 638, 683, 684, 698-701, 723
 layers of its wall, 556
 brachiocephalic, see "Vein, innominate"
 capital (of the arm), 697 and App., note 307
 capsular, 662
 cardinal, right and left, 578, 579
 cardiac, anterior, 562
 great, 562, 563, 567, 570, 584
 middle, 563, 569, 570, 584, 585
 posterior, 563, 569, 584, 585
 right, 563, 564
 small, 563, 564
 smallest, 562
 cavernous, 560 and note
 cephalic, 638, 671, 682-684, 694, 696, 697, 721-723, and
 App., note 305
 cerebellar, inferior, 691
 cerebral, App., note 297
 inferior, 691
 middle, 687, 689, 691
 superior, 689-691
 cervical, deep, 626, 665-667, 686
 subcutaneous, 626, 682
 superficial, 682-684, and App., note 285
 transverse, 666, 683, 684, 698, and App.,
 note 282
 ciliary, posterior, 686
 circumflex (of the arm), anterior, 683
 posterior, 683, 698, 699
 (of the thigh), external, 705-707
 internal, 706
 circumflex iliac, deep, 662, 673, 705-707
 superficial, 662, 671, 702, 706
 colic, left, 678
 middle, 678, 679
 right, 678, 679
 transverse, 678, note, 679, note
 comes nervi ischiadicici, 674, 675, 704
 communicating, between the posterior auricular and
 the superficial temporal veins, 666
 companion, of the artery of the penis (internal pudic
 artery), 674
 condyloid (emissary), anterior, App., notes 291 and 299
 posterior, App., note 291
 coronary, 562, 563, 567, 570, 584
 of the stomach, 678
 of the corpus cavernosum, 673
 costo-axillary, 671 and App., note 271
 cremasteric, 662 and note, 676, note, and App., note 277
 cutaneous, femoral, internal, 702, 724, 726
 cystic, 678
 deltoid, 682
 dental, inferior, 688
 digital, common, of the foot, 708, 710
 descending (branches of the deep palmar
 venous arch), 701, note
 dorsal, of the foot, 703, 708, 710
 palmar, collateral, 695 and App., note 301
 common, 700 and App., note 301
 (proper), or collateral digital veins, 695
 and App., note 301
 plantar, 711
 diploic, frontal, 683, 688
 dorsal, of the clitoris, 675, 676, and App., note 275
 of the foot, 710, 712
 of the penis, 672, 673, 705, and App., note 275
 subcutaneous, 671, 702, 706, and
 App., note 274
 ethmoidal, anterior, 687
 posterior, 687
 of the extremities, 663-713
 facial, 682-684, 688, 689, 721, and App., note 283
 anterior, 682-684, 688, 689, 721, and App., note 283
 common, 682-684, 686, 688, 689, and App., note 283
 deep, 682 and note, 684, 688
 posterior, see "Vein, temporomaxillary," and
 also App., note 283
 transverse, 682
 femoral, 579, 589, 599, 641-643, 658, 659, 662, 705-707,
 724, 725
 deep, 705, 707
 femoropopliteal, 708, 709, and App., note 212
 frontal, 682, 684, 687, 688
 diplomatic, 683, 688
 of Galen, App., note 297
 gastric, 678 and note
 short, 678
 gastro-epiploic, left, 678
 right, 678
 gluteal, 672, 673, 676, 704
 haemorrhoidal, inferior or external, 674, 675, 704, and
 App., note 279
 middle, 676
 superior, 672, 676, 678
 of the head and neck, 681, 691
 hemiazygos, 584, 585, 663, 664, 685, 718
 accessory, 579, 584, 663, 664, 685
 hepatic, 579-581, 662
 humeral, transverse, see "Vein, suprascapular"
 ileocolic, 679
 iliac, common, 662-664, 672, 673, 676-678
 external, 579, 662, 663, 672, 676, 677, and App.
 note 191
 iliolumbar, 664, 672, 676
 iliac or transverse branch, 662, 663
 infra-orbital, 688
 of inner head of triceps extensor cubiti muscle, 699
 innominate (or brachiocephalic), 580
 left, 579, 582-584, 586, 662-664, 685
 right, 583, 584, 586, 662-664, 683, 685, 686,
 698, 719
 intercapitular (of the foot), 712 and note, 713, and see
 also App., note 300
 (of the hand), 695, 696, 700, 701, and
 App., note 300
 intercostal, 663, 664
 superior, 663, 664, 685
 posterior or dorsal branch, 665, 667
 internal mammary, 662, 684, 685
 interosseous, anterior, 701
 palmar, 701

- Vein or veins :
 interventricular, anterior, 562, 563, 567, 570, 584
 posterior, 563, 564, 570, 584, 585
 * intervertebral, 626, 667, and App., notes 201 and 205
 intestinal, 678, 719
 jugular, anterior, 584, 626, 671, 682
 external, 579, 584, 626, 682-685
 posterior, 626, 682
 internal, 579, 584, 626, 666, 683, 685, 686
 primitive, right and left, 578
 transverse, App., note 124
 labial, inferior, 682, 684
 superior, 682, 684
 (vulval), anterior, App., note 138
 posterior, 675 and App., note 138
 lachrymal, 686, 687
 laryngeal, superior, 683, 688
 lingual, 683-686 and App., note 286
 lumbar, 662-664, 672
 ascending, 663-665, 669, 672, 673, 676
 posterior or dorsal branches, 665, 672
 malleolar, external, anterior, 710
 posterior, 711
 internal, posterior, 711
 mammary, external, 671, note; 683, note, 684, note, 698,
 note
 internal, 662, 684, 685
 abdominal branch of, 671, note
 tributaries of, forming connexions with the other cutaneous veins of the chest, 671
 marginal, left, 563, 569, 584, 585
 masseteric, 682, 684
 mastoid (emissary), 666, 667
 (as vestige of primitive terminal outlet of lateral sinus), App., note 284
 maxillary, internal, anterior, 682, 684, 688
 median basilic, 694, 696, 697 and note, and App., note 221
 deep, 694, 698, and App., notes 299 and 306
 of the elbow, 638, 667, 698, 722, and App., notes 221 and 308
 accessory, 694, 696, and App., note 308
 of the forearm, 694, 695, 697, 700
 of the neck, 626 and App., note 197
 meningeal, middle, 687, 688
 mesenteric, inferior, 672, 676, 678, 679
 superior, 678, 679
 * metacarpal, dorsal, 696 and App., note 302
 metatarsal, 710
 dorsal, 712
 plantar, 713
 nasal, 682-684, 688
 internal, 687
 * nasofrontal, 682, 686, 688, and App., note 282
 of the neck, median, 626 and App., note 197
 oblique, of the left auricle, 563, 584, 585, and App., notes 197 and 122
 obturator, 672, 673, 676, 705
 occipital, 666, 682, 683, 686
 (emissary), 667
 cesophageal, 685
 omphalomesenteric, 578
 ophthalmic, inferior, 686, 687
 superior, 686, 687, and see also App., note 282
 ophthalmomeningeal, 687 and note
 ovarian, 676, 677
 palatine, see App., note 295
 inferior, 686, 689, and App., note 295
 superior, App., note 295
 palpebral, inferior, 682, 684
 superior, 682, 684
 pancreatic, 678
 pancreaticoduodenal, 678
 para-umbilical (of Sappey), 671 and App., note 273
 connexions with the venous circle of the umbilicus, 671 and App., note 273
 Vein or veins :
 parotid, anterior, 682
 perforating, first or superior, 704, 705, 707, 709
 second or middle, 705, 707
 third or inferior, 705, 707, 709
 * perineal, 674, 675, and App., notes 147 and 149
 peroneal, 711
 pharyngeal, 685
 phrenic, inferior, 662
 plantar, external, 713
 internal, 713
 of the pons Varolii, 691
 popliteal, 643, 648, 649, 659, 708, 711, 799
 posterior, 580, 581, 594, 678
 accessory, App., note 273
 left branch, 580, 581
 right branch, 580, 581
 princeps pollicis, 701, note
 proctodeal, App., note 279
 profunda, inferior, 698
 superior, 699
 (of the thigh), 705, 707
 pubic, see "Veins, pudic, external"
 pudic, external, 662, 671, 702, 705-707
 internal, 672 and note, 673-677, 704
 pulmonary, left, 562, 563, 566-568, 571, 573-575, 577, 583,
 585
 right, 562, 563, 565-567, 571, 573-575, 577,
 580-584
 radial, 639, 695-697, 700, 722, and App., note 305
 (deep), 698, 700, 701
 recurrent, 700, 701
 ranine, 683, 686, 688, 689, and App., note 286
 rectal, see "Veins, hemorrhoidal"
 renal, 579, 580, 662
 sacral, lateral, 662, 663, 672, and App., note 258
 median, 662, 663, 673, 678, and App., note 253
 saphenous, external or short, 652, 659, 660, 703, 708, 709,
 713, 727
 internal or long, 598, 640, 652, 658-660, 702,
 703, 708, 712, 713, 724, 725
 posterior branch, 702, 724, 726
 scapular, transverse, see "Vein, suprascapular"
 sciatic, 672-675, 704
 scrotal, anterior, 662, 674, 702, 706, and App., note 138
 * posterior, 674, 704, and App., note 138
 sigmoid, 678
 spermatic, 662 and note, 673, 678
 sphenopalatine, App., note 295
 spinal, dorsal, App., note 206
 external, anterior, 691 and App., note 298
 posterior, App., note 298
 internal, App., note 218
 longitudinal, anterior, 626, 658, 669, and App., notes 208 and 207
 posterior, App., note 263
 of the spinal cord, App., note 208
 splenic, 662, 678
 sternocleidomastoid, 685 and App., note 114
 striate, inferior, App., note 297
 stylomastoid, 686
 subclavian, 579, 584, 683-685, 698
 subcutaneous, of the abdomen, 672
 of the chest, 671
 of the neck, 671
 sublingual, 686 and App., note 283
 submental, 682-684
 subscapular (long), 684
 dorsal branch, 683, 684, 698, 699
 supra-orbital, 683, 684
 suprarenal, 662
 suprascapular, 682-685, 698
 sural, external, 711
 internal, 711
 Sylvian, deep, App., note 297
 superficial, 687, 689, 691
 temporal, deep, 688
 middle, 682-684, 688, 689
 superficial, 682-684

INDEX

- Vein or veins:
 of the temporomandibular articulation, 683, 688, and
 App., note 27
 temporomaxillary, 682-685, 688, 689, and App., note 283
 thoracic, long, 671, 683, 684, 698
 thoraco-epigastric, 671 and App., note 271
 of the thumb, large, 701
 thyroid, inferior, 585, 685
 lowest, 582-584, 586, 662-664, 683, 685
 superior, 626, 683-686, 688, 689
 tibial, anterior, 710, 712
 posterior, 711, 713
 recurrent, anterior, 710
 tracheal, 685
 transverse facial, 682
 of the trunk, 661-679
 thymic, 662
 ulnar, anterior, 639, 694-697, 700, and App., note 306
 (deep), 698, 700, 701
 posterior, 694 and App., note 306
 recurrent, anterior, 700, 701
 superficial, see "Veins, ulnar"
 umbilical, 578, 580, 581
 uterine, 677
 valves of, 560
 of the vermiform appendix, 678, 679
 vertebral, 626, 663, 667, 685, 686
 posterior, 626, 665-667, 686
 vitelline, 578
 vorticose, 687
 * vulval, anterior, App., note 136
 * posterior, 675 and App., note 133
 Vena, 557, 588
 Vena vel venæ:
 † acromialis, 682-684
 † alveolaris inferior, 688
 anastomotica facialis, 682, 684, 688
 angularis, 682-684
 anonyma dextra, 583, 584, 586, 662-664, 683, 685, 686,
 698, 718
 sinistra, 579, 582-584, 586, 662-664, 685
 anonymæ, 580
 appendicularis, 678, 679
 arcuata (pedis), 710
 articulares, anteriores, 682, 684
 mandibulae, 683, 688
 auricularis posterior, 666, 682
 axillaris, 683, 684, 698
 azygos, 563, 565-567, 572, 579, 580, 582, 663, 664, 685, 718
 basalis (Rosenthali), 691
 basilica, 638, 639, 683, 684, 691-693, 723
 basis vertebrarum, App., note 285
 basivertebræ, 668, 669
 brachiales, 638, 683, 684, 698-701, 723
 capitatis brachii, 697
 cardinales, dextra et sinistra, 578, 579
 cava inferior, 563, 565, 566, 571, 572, 575, 577, 579-582,
 584, 585, 590, 594, 662-664, 678
 parietal and visceral tributaries (radices parietales et viscerales), 662
 superior, 562-568, 571, 572, 574, 575, 577, 579, 580,
 582-586, 662-666
 left, 585
 sinistra, 585
 † cavernosæ, 560
 cephalica, 638, 639, 671, 682-684, 694-697, 721, 723
 accessoria, 696
 pollicis, App., note 304
 cerebelli inferiores, 691
 cerebri inferiores, 691
 media, 687, 689, 691
 superiores, 689-691
 cervicalis profunda, 626, 665-667, 686
 subcutanea, 626, 682
 superficialis, 632-634
 ciliæ posteriores, 686
 circumflexæ femoris laterales, 705-707
 mediales, 705
 circumflexa ilium profunda, 662, 673, 705-707
 superficialis, 662, 671, 702, 706
- Vena vel venæ:
 † circumflexa humeri anterior, 683
 posterior, 683, 698, 699
 † colica dextra, 678, 679
 media, 678, 679
 sinistra, 678
 † collaterales radiales, 699
 ulnares superiores, 698
 collateralis media, 699
 ulnaris inferior, 700, 701
 colli et capitis, 681-691
 comitans n. hypoglossi, 683, 688, 689
 ischiadici, 674, 675, 704
 comitantes arterie femoralis, 560, 706, 707
 comites, 560
 of the brachial artery, 683, 683, 684, 698-701,
 723
 of the femoral artery, 560 and note, 706, 707
 of the lingual artery, App., note 286, and see
 also "Veins, lingual"
 cordis anteriores, 562
 magna, 562, 563, 567, 570, 584
 media, 563, 569, 570, 584, 585
 minima, 562
 parva, 563, 584
 coronaria ventriculi, 678
 costoaxillares, 671
 cystica, 678
 † deltoideæ, 682
 digitales communes pedis, 708, 710
 pedis dorsales, 703, 708, 710
 plantares, 711
 volares communes, 700
 propriae, 695
 diploica frontalis, 683, 688
 dorsales pedis, 710, 712
 penis subcutaneæ, 671, 702, 706
 dorsalis clitoridis, 675, 676
 penis, 672, 673, 705
 duodenales, 678
 epigastrica inferior, 662, 673, 705, 707
 superficialis, 671, 702, 706, 725, 726, 728
 superior, 671
 ethmoidalis anterior, 687
 posterior, 687
 † extremitatum superiorum et inferiorum, 693-713
 facialis anterior, 682-684, 688, 689, 698
 communis, 682-684, 686, 688, 689
 posterior, 682-685, 688, 689
 femoralis, 579, 598, 599, 641-643, 658, 659, 662, 705-707,
 724, 725
 femoropoplitea, 708, 709
 frontalis, 682, 684, 687, 688
 gastrice breves, 678
 gastro-epiploïcæ, dextra et sinistra, 678
 rami epiploïcæ, 679
 genu, 711
 glutææ inferiores, 672-675, 704
 superiores, 672, 673, 676, 704
 haemorrhoidales inferiores, 674, 675, 704
 haemorrhoidalis media, 676
 superior, 672, 676, 678
 hemiazygos, 579, 584, 585, 663, 664, 685, 718
 accessoria, 584, 663, 664, 684, 685
 hepaticæ, 579-581, 662
 hypogastrica, 579, 662, 672, 673, 676, 677
 ileocolica, 679
 iliaca communis, 662-664, 672, 673, 676-678
 externa, 662, 663, 672, 676, 677
 iliolumbalis, 664, 672, 676
 ramus iliacus, 662, 633
 infra-orbitalis, 688
 intercapitulares (†manus), 695, 696, 700, 701
 (†pedis), 712, 713
 intercostales, 663, 664
 ramus dorsalis, 665, 667
 intercostalis suprema, 663, 664, 685
 interosseæ volares, 701
 intervertebrales, 626, 667

- Vena *vel* vena:
 intestinales, 678, 719
[†] jugulares (embryonales), dextra et sinistra, 578
 Jugularis anterior, 584, 626, 671, 682
 externa, 579, 584, 626, 682-685
 interna, 579, 584, 626, 666, 683, 685, 686
 labiales posteriores, 675
 labialis inferior, 682, 684
 superior, 682, 684
 lacrimalis, 686, 687
 laryngea superior, 683, 688
 lemnalis, 662, 678
 linguales, 684-686
 lumbales, 662-664, 672
[†] rami dorsales, 665, 672
 lumbalis ascendens, 663-665, 669, 972, 673, 676
 malleolares anteriores, 710
 posteriorres, 711
 mammaia interna, 662, 684, 685
 masseterica, 682, 684
 mediana antibrachii, 694, 695, 697, 700
 basilica, 694, 696, 697
 cephalica, 694, 697
 collis, 626
 cubiti, 638, 697, 698, 722
 meningea [†]mediae, 687, 688
 mesenterica inferior, 672, 676, 678, 679
 superior, 678, 679
 metacarpae dorsales, 696
 volares, 701
 metatarsæ dorsales, 712
 plantares, 713
 nasales externe, 682-684, 688
 nasofrontalis, 682, 686, 688
 obliqua atrii sinistri (Marshalli), 563, 584, 585
 obturatoriae, 672, 673, 676, 705
 occipitalis, 666, 682, 683, 686
 œsophagæ, 685
 omphalomesentericæ, 578
 ophthalmica inferior, 686, 687
 superior, 686, 687
 venæ musculares, 687
 ophthalmomeningea, 687
 ovarica, 676, 677
 palatina, 686, 689
 palpebrales, inferiores, 682, 684
 superiores, 682, 684
 pancreaticæ, 678
 pancreaticoduodenalis, 678
 parotidea anteriores, 682
 parambilicales (Sappey) 671
 perforans prima, 704, 705, 707, 709
 secunda, 705, 707
 tertia, 705, 707, 709
 perinei, 674, 675
 peronæa, 711
 pharyngea, 685
 phrenica inferior, 662
 plantares, laterales, 713
 mediales, 713
 poplitea, 643, 648, 649, 659, 708, 709
 poplitea, 711
 portæ, 580, 581, 594, 678
 ramus dexter, 580, 581
 sinister, 580, 581
 posterior ventriculus sinistri, 563, 569, 584, 585
 profunda brachii, 699
 femoris, 705, 707
[†] profunda linguae, 686
 penis, 673
 pudenda externæ, 662, 671, 702, 705-707
 internæ, 672-677, 704
 pulmonales dextrae, 563, 565-567, 571, 573-575, 577, 580-584
 sinistrae, 563, 566-568, 571, 573-575, 577, 583-585
 radiales, 698, 700, 701
[†] recurrens radialis, 700, 701
[†] ulmaris, 700, 701
 Vena *vel* vena:
 recurrentes tibiales, 710
[†] renales, 579, 580, 662
 sacralis lateralis, 663, 672
 media, 663, 673, 678
 Salvatella, App., note ³⁰⁴
 saphena accessoria, 702, 724, 726
 magna, 640, 652, 653-660, 702, 703, 708, 712,
 713, 724, 725
 parva, 652, 659, 660, 703, 708, 709, 713, 727
 satellites arteriarum, 560, note
 scrotales anteriores, 662, 674, 702, 706
 posteriorres, 674, 704
 sigmoidæ, 678
 spermatica externa, 662
 interna, 662, 673, 678
 spinæ extermæ anteriores, 691
 sternocleidomastoïdeæ, 685
 stylomastoïdeæ, 686
 subclavia, 579, 584, 683-685, 698
 subcutaneæ abdominis, 671
 collis, 671
[†] pectoris, 671
 sublingualis, 686
 submentalis, 682-684
 subscapularis, 684
[†] supra-orbitæ, 683, 684
 suprarenalis, 662
[†] suralis, lateralîs, 711
 medialis, 711
 temporales profunde, 688
 temporalis media, 682-684, 688, 689
 superficialis, 682-684
 testicularis, 662, 673
 thoracalîs lateralîs, 671, 683, 684, 698
[†] thoraco-acromialis, rami pectorales, 682
 thoracodorsalis, 698
 thoraco-epigastricæ, 671
 thyinica, 662
 thyroideæ ima, 582-584, 586, 662-664, 683, 685
 inferior, 685
 superior, 626, 683-686, 688, 689
 thyroideæ inferiores, 585
 thyroïdeæ, 685
 tibiales anteriores, 710, 712
 posteriorres, 711, 713
 trachealis, 685
 transversa colli, 666, 683, 684, 698
 faciei, 682
 scapulae, 682-685, 698
[†] trunci, 661-679
 ulnare, 668, 700, 701
 umbilicalis, 578, 580, 581
 uterina, 677
 vertebralîs, 626, 663, 667, 685, 686
 vorticosa, 687
*Venous angle, 585, 584
 radicle, 584
 Ventricle (of the heart), left, 562, 566, 567, 569, 570, 573-577,
 584, 586
 right, 562, 564, 565, 569, 570, 572, 574,
 574-577, 586
 primary, 577, 578
 Ventriculus (cordis) dexter, 562, 564, 565, 569, 570, 572, 574,
 577, 586
 sinister, 562, 566, 567, 569, 570, 573-577,
 584, 586
 Vessels, capillary, 558
 arterial, 558
 venous, 558
 of lymphatic glands, afferent, 716, 717
 efferent, 716, 717
 lymphatic, capillary, 559
 subcapillary, 559
 Villi, arachnoidal, 689 and App., note ²⁹⁶
 Vortex of the heart (vortex cordis), 576

AN ATLAS
OF
HUMAN ANATOMY
FOR STUDENTS AND PHYSICIANS

BY
CARL TOLDT, M.D.

ASSISTED BY
PROFESSOR ALOIS DALLA ROSA, M.D.

Adapted to English and American and International Terminology

BY
M. EDEN PAUL, M.D. BRUX., M.R.C.S., L.R.C.P.

SIXTH SECTION

G. NEUROLOGY
H. THE ORGANS OF THE SENSES
(FIGURES 1124 TO 1505 AND INDEX)

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NEUROLOGIA

NEUROLOGY

NEUROLOGY—GENERAL CONSIDERATIONS

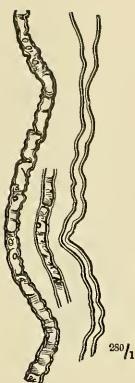


FIG. 1124.—MEDULLATED NERVE FIBRES,³ FROM A PERIPHERAL NERVE TEASED OUT IN NORMAL SALT SOLUTION.

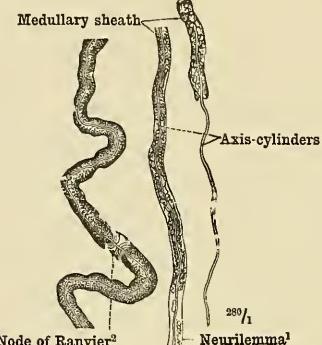


FIG. 1125.—MEDULLATED NERVE FIBRES³; THE AXIS-CYLINDER HAS BEEN RENDERED VISIBLE BY TREATMENT WITH MÜLLER'S FLUID.

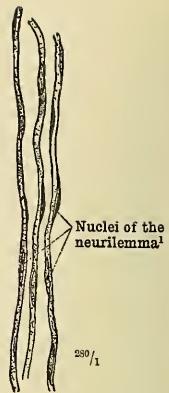


FIG. 1126.—NON-MEDULLATED NERVE FIBRES³ INVESTED WITH NEURILEMMA (see Appendix, note ³¹⁸), FROM THE CORD OF THE SYMPATHETIC NERVE.

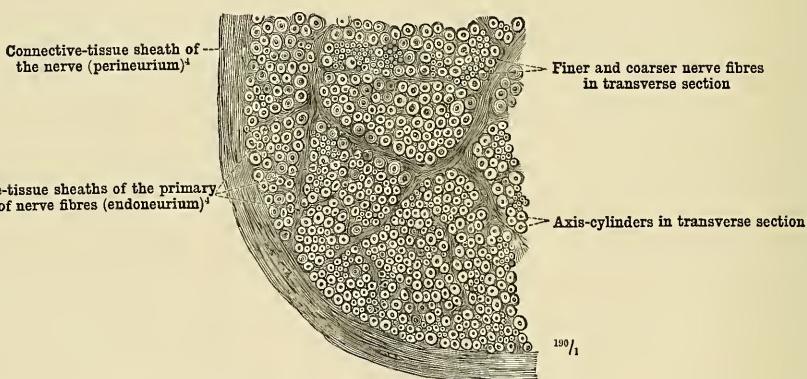


FIG. 1127.—TRANSVERSE SECTION OF A PORTION OF THE HUMAN MEDIAN NERVE. (See Appendix, conclusion of note ³²⁰.)

¹ See Appendix, note ³¹⁸.

² Quain gives *constriction* (*of Ranvier*) as an alternative name for the *node of Ranvier*, but the latter term is that in general use.—TR.

³ See Appendix, note ³¹⁹.

⁴ See Appendix, note ³²⁰.

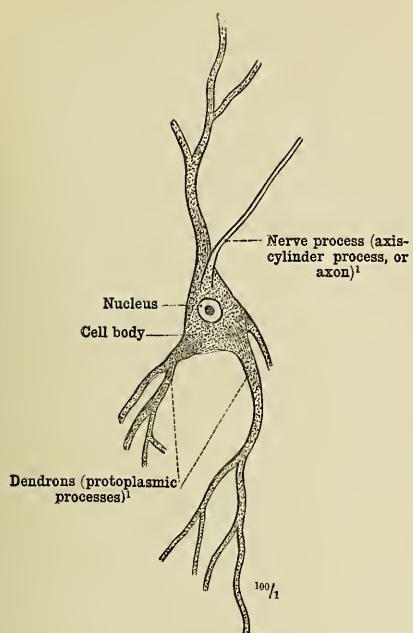


FIG. 1128.—MOTOR NERVE CELL FROM THE ANTERIOR COLUMN OF THE HUMAN SPINAL CORD.

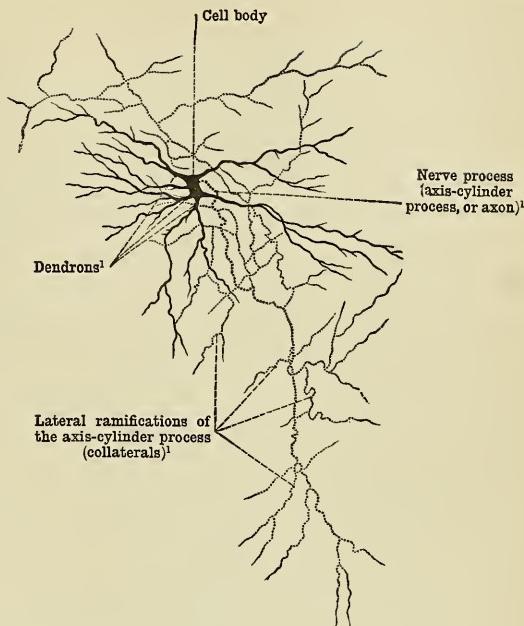


FIG. 1129.—TYPE OF SENSORY NERVE CELL (AFTER GOLGI).

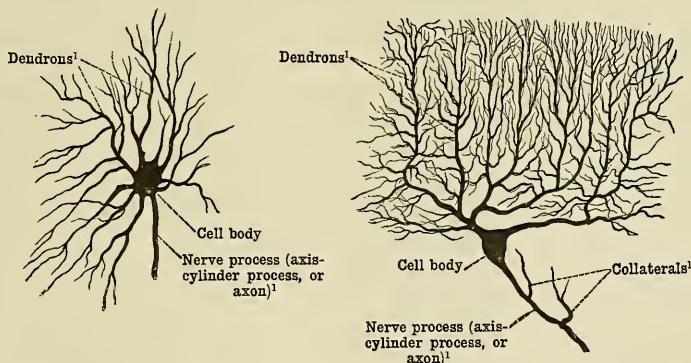


FIG. 1130.—GANGLION CELLS FROM THE SYMPATHETIC NERVOUS SYSTEM.

FIG. 1131.—CELL OR CORPUSCLE OF PURKINJE FROM THE HUMAN CEREBELLUM (AFTER GOLGI).

¹ See Appendix, note 32.

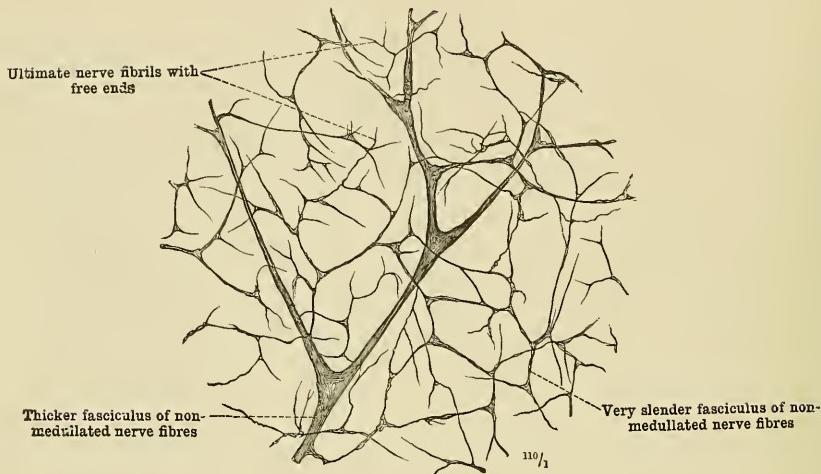


FIG. 1132.—NERVES OF THE CORNEA, STAINED WITH CHLORIDE OF GOLD. PERIPHERAL TERMINAL NETWORK¹ OF SENSORY NERVES WITH ULTIMATE FIBRILS ENDING FREELY. THE PLANE OF THE NETWORK IS PARALLEL WITH THE SURFACE OF THE CORNEA.

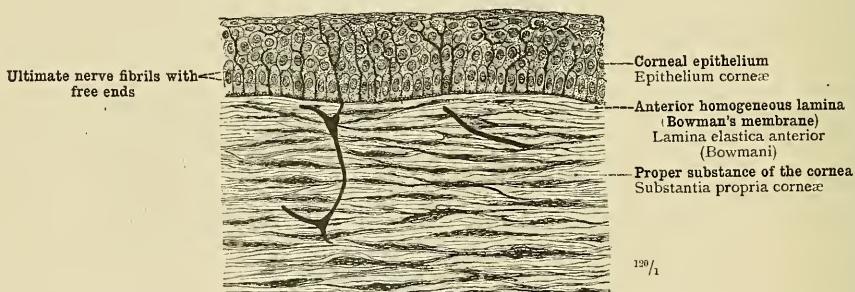


FIG. 1133.—NERVES OF THE CORNEA, STAINED WITH CHLORIDE OF GOLD. VERTICAL SECTION THROUGH THE ANTERIOR PORTION OF THE CORNEA. THE NERVE FIBRILS END FREELY IN THE EPITHELIUM.²

¹ See Appendix, note 322.

² See Appendix, note 323.

Free Peripheral Ending of Sensory Nerve Fibres.

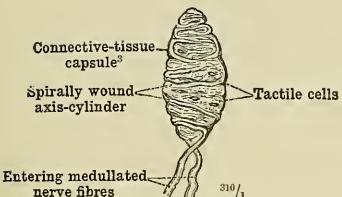


FIG. 1134.—TOUCH CORPUSCLE,¹ CORPUSCULUM TACTIS, FROM THE FINGER-TIP OF AN ADULT MAN.

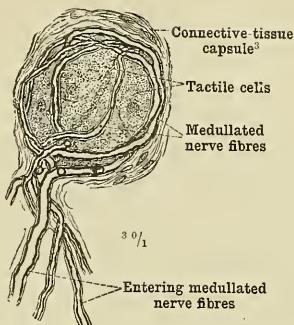


FIG. 1135.—SPHEROIDAL END-BULB OF KRAUSE, CORPUSCULUM BULBOIDEUM, FROM THE HUMAN CORNEA.

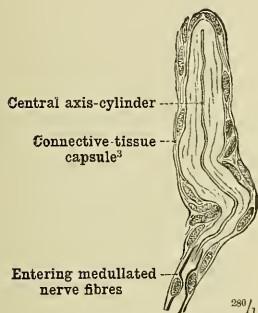


FIG. 1136.—CYLINDRICAL END-BULB FROM THE CONJUNCTIVA OF THE CALF.

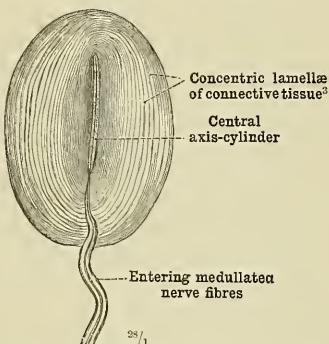


FIG. 1137.—PACINIAN CORPUSCLE,² CORPUSCULUM LAMELLOSUM, FROM THE MESOCOLON OF THE CAT.

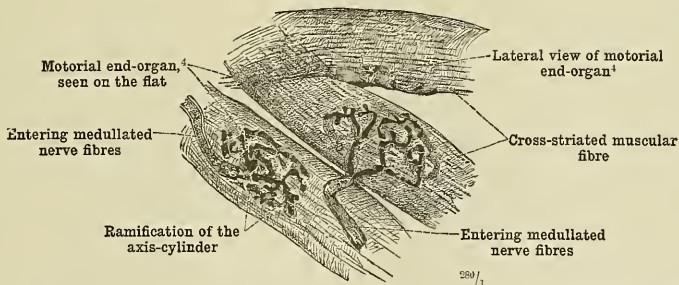


FIG. 1138.—TERMINATION OF MOTOR NERVE FIBRES IN CROSS-STRIATED MUSCULAR FIBRES.

¹ See Appendix, note 324.

² See Appendix, note 325.

³ See Appendix, note 326.

⁴ Motorial End-Organ.—The term *end-organ* is rightly preferred by Quain to the more familiar *end-plate*, this structure being, as the figure shows, not a continuous plate, but a flattened ramification.—Tr.

Terminal corpuscles of sensory nerves, Corpuscula nervorum sensibilium terminalia.—Motorial end-organs (end-plates). (See note ⁴ above.)

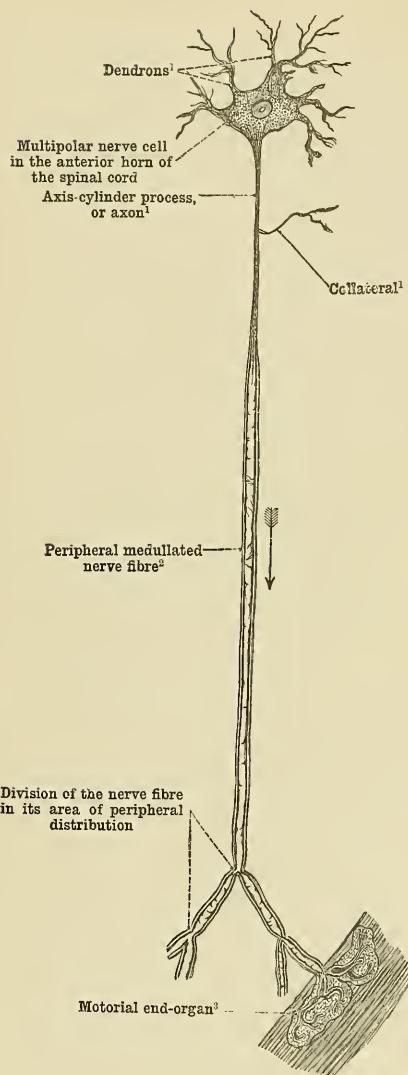


FIG. 1139.—DIAGRAMMATIC REPRESENTATION OF THE ORIGIN, COURSE, AND PERIPHERAL DISTRIBUTION OF A MOTOR NERVE FIBRE.

In both figures the arrows indicate the direction in which the nervous impulse passes.

¹ See Appendix, note 321.

² See Appendix, note 316.

³ See note 4 to p. 749.

⁴ See Appendix, note 323.

⁵ See note 9 to p. 755.

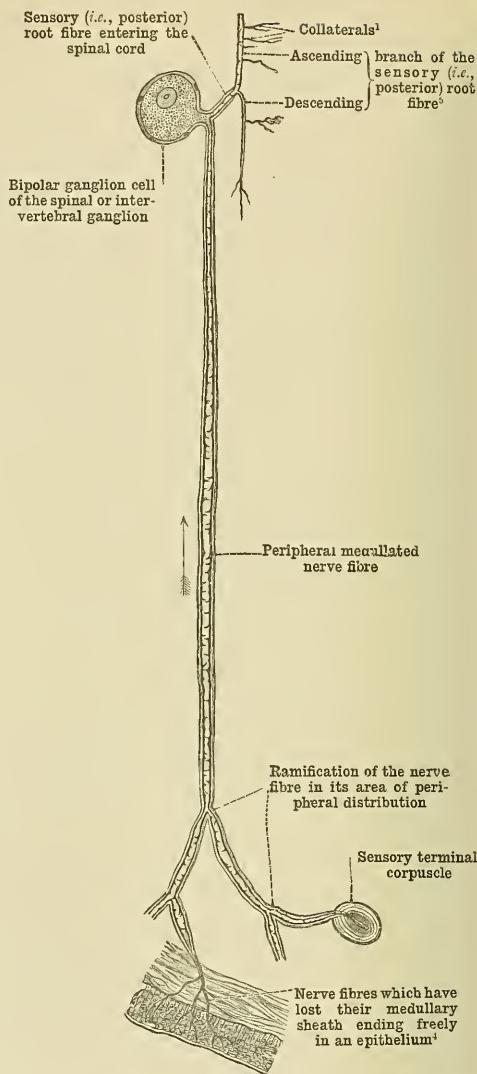


FIG. 1140.—DIAGRAMMATIC REPRESENTATION OF THE ORIGIN, COURSE, AND PERIPHERAL DISTRIBUTION OF A SENSORY NERVE FIBRE.

Origin and Termination of Nerve Fibres.

SYSTEMA NERVORUM
CENTRALE

THE
CENTRAL NERVOUS SYSTEM

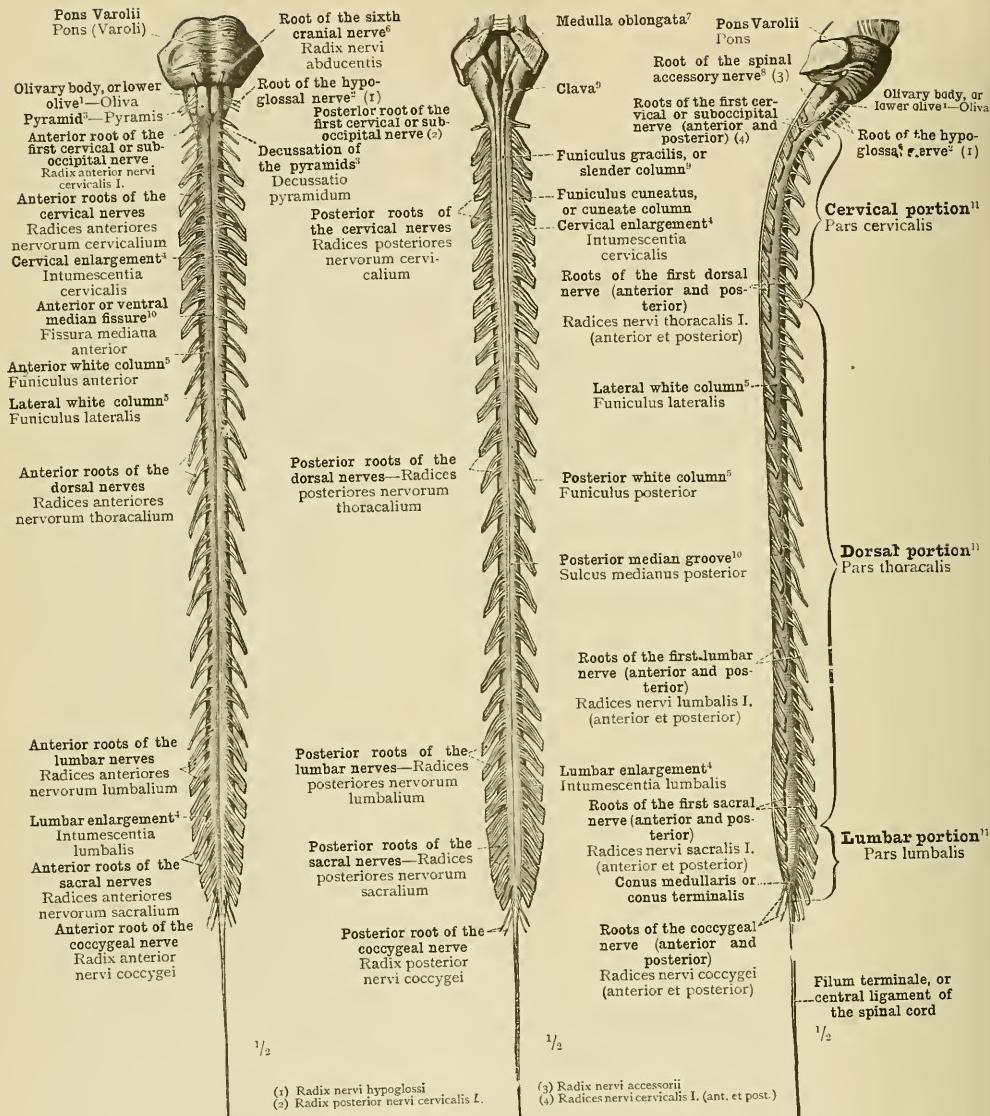


FIG. 1141.—SEEN FROM BEFORE.

FIG. 1142.—SEEN FROM BEHIND.

FIG. 1143.—SEEN FROM THE RIGHT SIDE.

¹ See Appendix, note 377.² Twelfth cranial nerve in Soemmerring's enumeration, ninth in that of Willis; sometimes also known as the *lingual motor nerve*.³ See Appendix, note 398.⁴ See Appendix, note 399.⁵ Known also as the *abducens ocular nerve*.⁶ Ninth cranial nerve in Soemmerring's enumeration, *accessory portion of the eighth cranial nerve* in that of Willis.⁷ The *funiculi gracilis* with their *clavae* are sometimes described as the *posterior pyramids*.⁸ See Appendix, note 332.⁹ See Appendix, note 333.

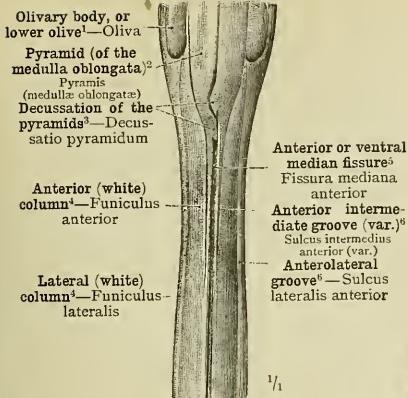


FIG. 1144.—THE CERVICAL PORTION OF THE SPINAL CORD, PARS CERVICALIS MEDULLÆ SPINALIS (see Appendix, note 333), WITH THE ADJOINING PORTION OF THE MEDULLA OBLONGATA, SEEN FROM BEFORE.

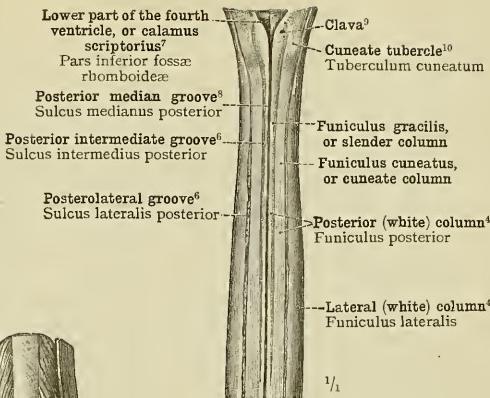


FIG. 1145.—THE CERVICAL PORTION OF THE SPINAL CORD, PARS CERVICALIS MEDULLÆ SPINALIS (see Appendix, note 333), WITH THE ADJOINING PORTION OF THE MEDULLA OBLONGATA, SEEN FROM BEHIND.

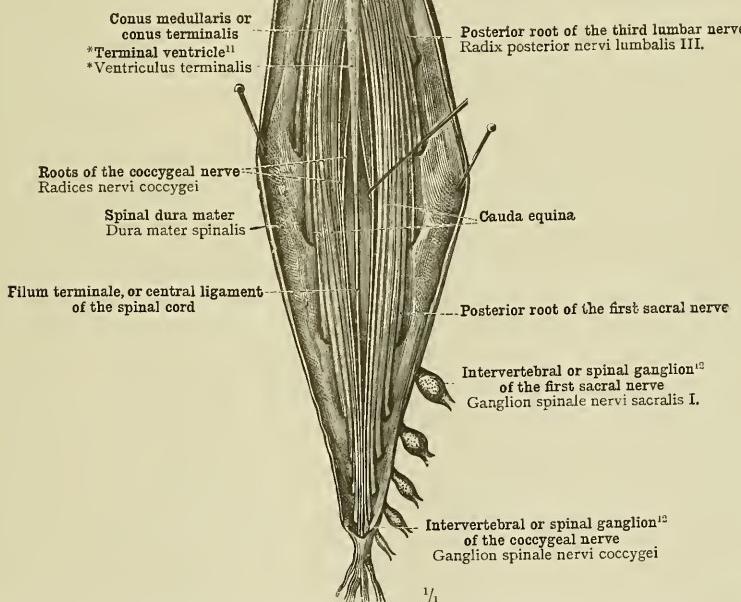


FIG. 1146.—THE LUMBAR PORTION OF THE SPINAL CORD, PARS LUMBALIS MEDULLÆ SPINALIS (see Appendix, note 333), WITH THE CONUS MEDULLARIS (OR CONUS TERMINALIS), THE FILUM TERMINALE (OR CENTRAL LIGAMENT OF THE SPINAL CORD), AND THE CAUDA EQUINA. SEEN FROM BEHIND.

¹ See Appendix, note 337.

² The words *medulla oblongata* are added to distinguish the *pyramid* of the *medulla oblongata* from the *pyramis vermis*, the *Pyramis of the lower worm of the cerebellum*. See also Appendix, note 338.

³ See Appendix, note 338.

⁴ See Appendix, note 336.

⁵ See Appendix, note 337.

⁶ See Appendix, note 335.

⁷ See Appendix, note 336.

⁸ See Appendix, note 338.

⁹ See Appendix, note 9 to p. 752.

¹⁰ See Appendix, note 337.

¹¹ Also called the *ganglion of the posterior root*.

¹² See Appendix, note 334.

Medulla spinalis—The spinal cord (see Appendix, note 334).

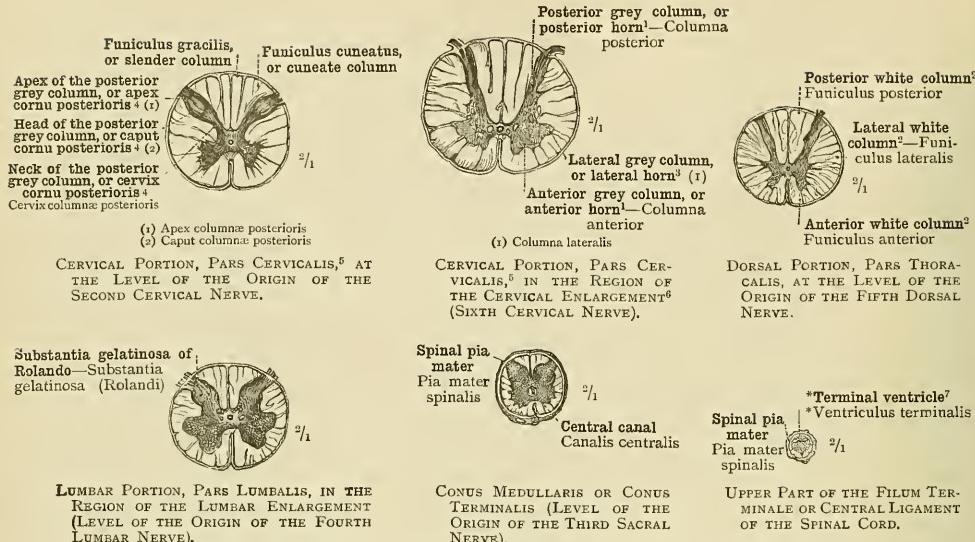
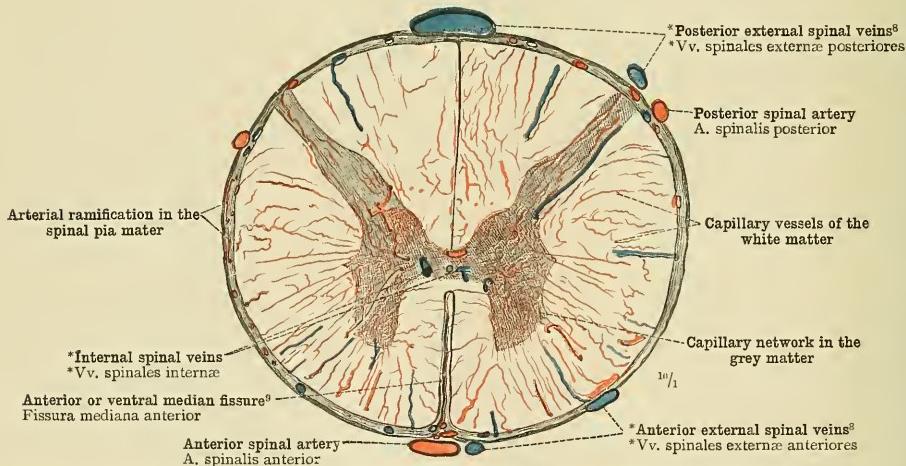


FIG. 1147.—TRANSVERSE SECTIONS OF THE SPINAL CORD OF AN ADULT MAN.

FIG. 1148.—THE BLOOD-SUPPLY OF THE SPINAL CORD. TRANSVERSE SECTION THROUGH THE LOWER END OF THE DORSAL PORTION (PARS THORACALIS).⁵¹ See Appendix, note 329.² See Appendix, note 329.³ Better known as the *intermediolateral tract* of Lockhart Clarke (*intermediate process* of Gowers). Regarding the use of the term *lateral grey column*, see Appendix, note 339.⁴ The *posterior horn* consists of three parts: the *cervix*, the narrow base; the *caput*, the thickened main portion; and the *apex*, the thin posterior extremity just beneath the postero-lateral groove. Regarding the use of the term *posterior grey column*, see Appendix, note 339.⁵ See Appendix, note 333.⁶ See Appendix, note 340.⁷ See Appendix, note 329.⁸ See Appendix, note 332.⁹ See Appendix, note 338.

Medulla spinalis—The spinal cord (see Appendix, note 334).

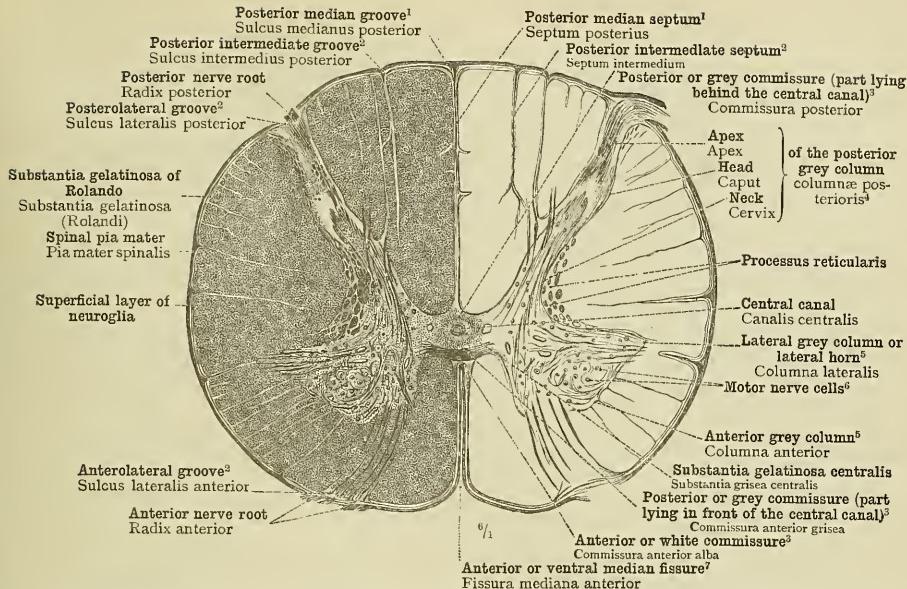


FIG. 1149.—TRANSVERSE SECTION THROUGH THE CERVICAL ENLARGEMENT, INTUMESCENTIA CERVICALIS,⁸ OF THE SPINAL CORD, AT THE LEVEL OF THE EMERGENCE OF THE ROOTS OF THE SIXTH CERVICAL NERVE.

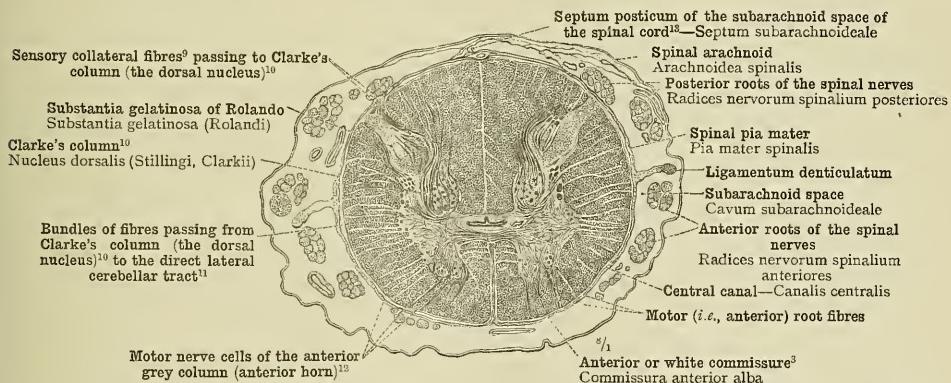


FIG. 1150.—TRANSVERSE SECTION THROUGH THE UPPERMOST PART OF THE LUMBAR PORTION OF THE SPINAL CORD (see Appendix, note 33^a), WITH THE PIA MATER AND THE ARACHNOID. THE POSTERIOR COLUMN OF LOCKHART CLARKE, OR DORSAL NUCLEUS, NUCLEUS DORSALIS.¹⁰ FROM A CHILD AGED THREE YEARS.

⁸ See Appendix, note 33^a.

⁹ See Appendix, note 33^a.

¹⁰ See Appendix, note 34^a.

¹¹ See Appendix, note 33^a; ⁶ Constituting the motor cell column or cell column of the anterior horn.

¹² See Appendix, note 34^a.

¹³ See Appendix, note 34^a.

¹⁰ These cells make up what Quain terms the motor cell column or the cell column of the anterior horn. Regarding the use of the term anterior grey column for the anterior horn, see Appendix, note 33^a.

¹² See Appendix, note 34^a.

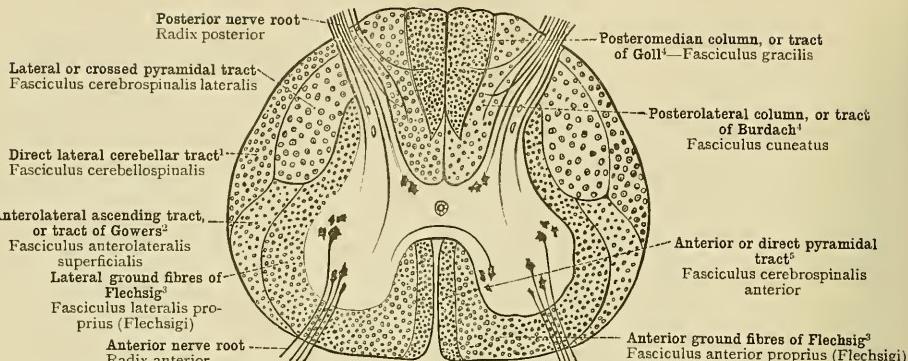


FIG. 1151.—DIAGRAMMATIC REPRESENTATION OF THE CONDUCTING SYSTEMS (CONDUCTING TRACTS) IN THE WHITE SUBSTANCE OF THE SPINAL CORD; AS SEEN IN A SECTION THROUGH THE LOWER EXTREMITY OF THE CERVICAL PORTION OF THE CORD (see Appendix, note 333).

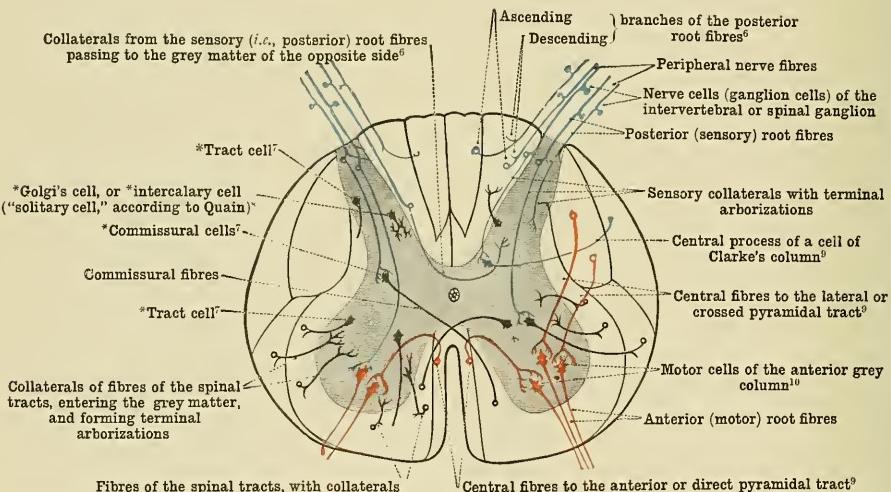


FIG. 1152.—DIAGRAMMATIC REPRESENTATION OF THE COURSE OF THE FIBRES OF THE SPINAL CORD, AS SEEN IN A SECTION THROUGH THE LOWER END OF THE CERVICAL PORTION OF THE CORD (see Appendix, note 333).

¹ See Appendix, note 344.

² See Appendix, note 346.

³ See Appendix, note 347.

⁴ See Appendix, note 348.

⁵ Known also as the column or tract of Tönnies.

⁸ See Appendix, note 350.

⁶ See Appendix, note 342.

⁷ See Appendix, note 349.

⁹ See Appendix, note 357.

¹⁰ See Appendix, note 339.

Decursus fibrarum spinalium—Course of the fibres of the spinal cord.

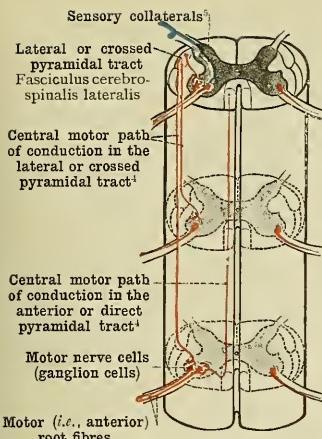


FIG. 1153.—DIAGRAMMATIC REPRESENTATION OF THE CENTRAL⁴ MOTOR PATHS OF CONDUCTION IN THE SPINAL CORD. SEEN FROM BEFORE.

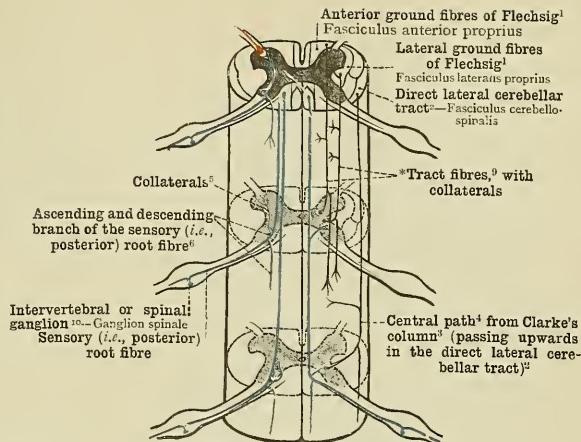


FIG. 1154.—DIAGRAMMATIC REPRESENTATION OF THE CENTRAL⁴ SENSORY PATHS OF CONDUCTION IN THE SPINAL CORD. SEEN FROM BEHIND.

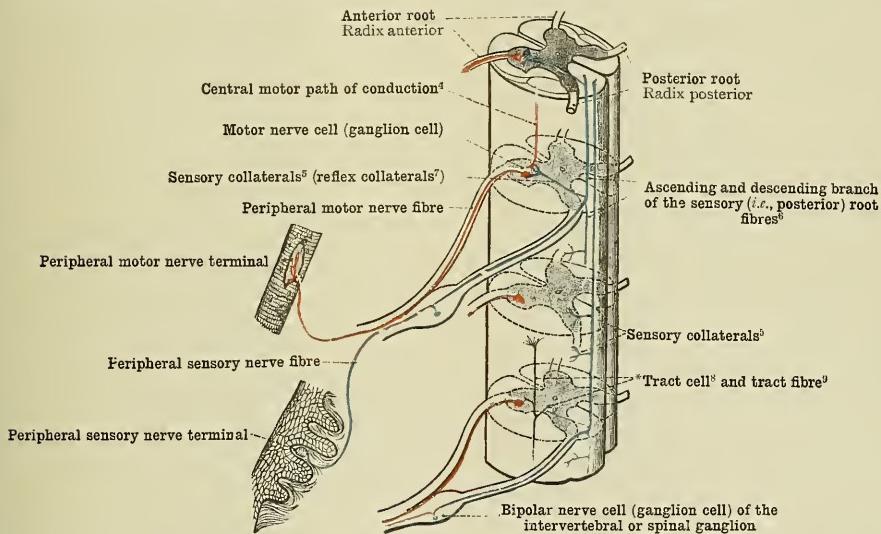


FIG. 1155.—DIAGRAMMATIC REPRESENTATION OF THE MOTOR AND SENSORY PATHS OF CONDUCTION, AND OF THE REFLEX ARCS OF THE SPINAL CORD.

¹ See Appendix, note 347.

² See Appendix, note 344.

³ See note 3 to p. 754.

⁴ Regarding the significance of the term *central* in these instances, see Appendix, note 351.

⁵ See Appendix, note 351.

⁶ See Appendix, note 342.

⁷ See Appendix, note 352.

⁸ See Appendix, note 349.

⁹ *Tract Fibre.*—The author uses the term *tract fibre* (*Strangfaser*) as an abbreviation for fibre of one of the tracts of the white matter of the spinal cord.

¹⁰ Also called the *ganglion of the posterior root*.

Decursus fibrarum spinalium—Course of the fibres of the spinal cord.

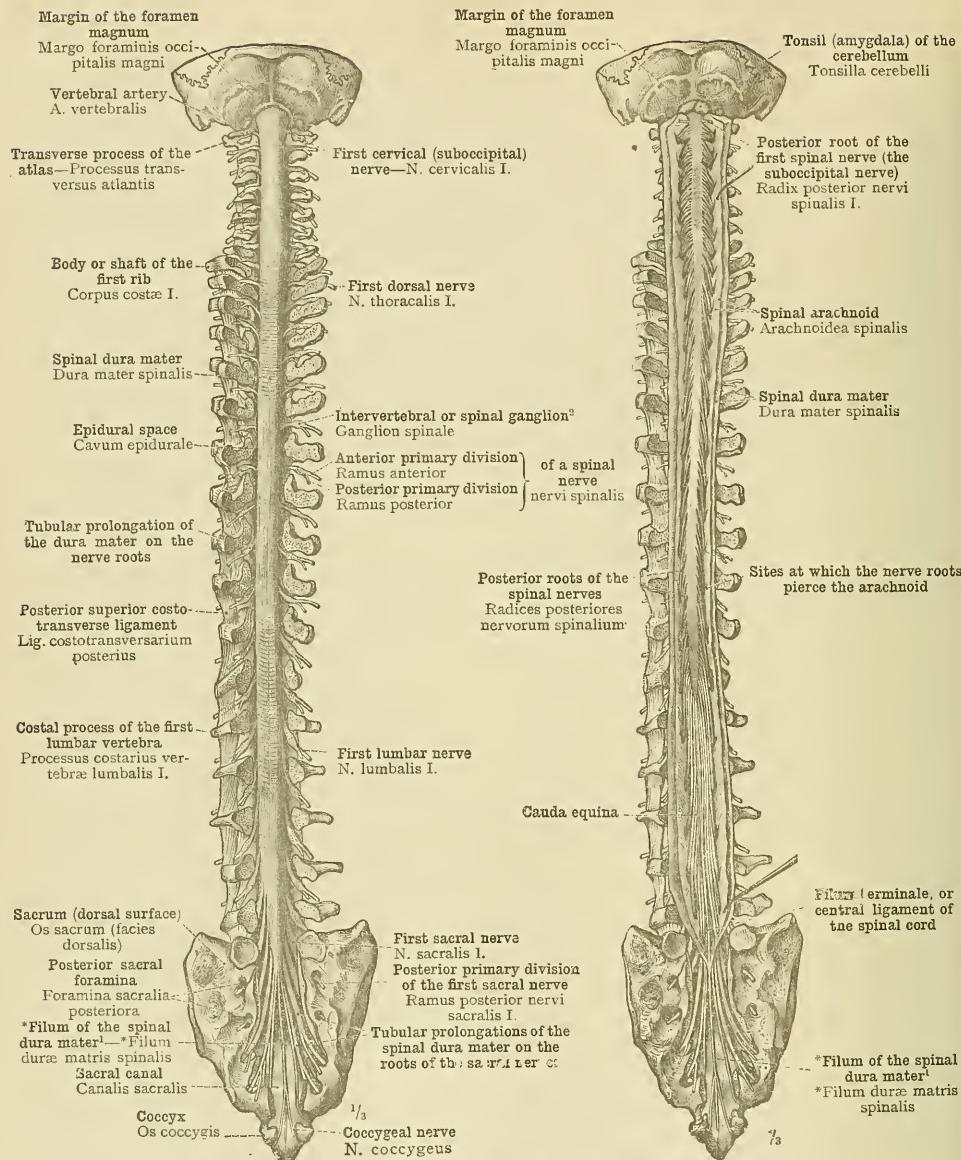
¹ See Appendix, note 353.² Also called the ganglion of the posterior root.

FIG. 1156.—THE SPINAL DURA MATER, DURA MATER SPINALIS, UNOPENED. SEEN FROM BEHIND.

FIG. 1157.—THE SPINAL DURA MATER, DURA MATER SPINALIS, AND THE SPINAL ARACHNOID, ARACHNOIDEA SPINALIS, BOTH OPENED FROM BEHIND.

Meninges spinales—The membranes of the spinal cord.

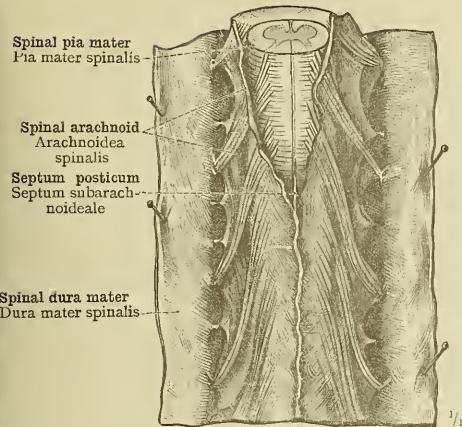


FIG. 1158.—THE SPINAL ARACHNOID, ARACHNOIDEA SPINALIS, EXPOSED IN PART OF THE CERVICAL PORTION OF THE SPINAL CORD¹ BY INCISING THE DURA MATER FROM BEHIND.

In the upper part of the preparation the arachnoid has been divided in the median line and the margins of the incision have been drawn apart.

¹ See Appendix, note 333.

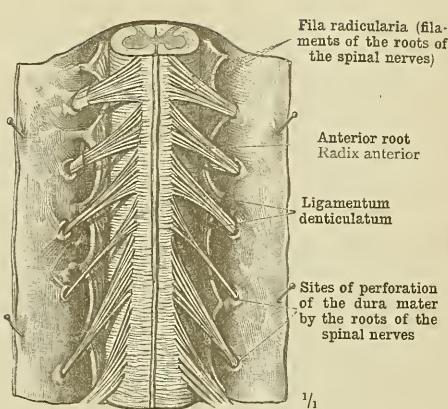


FIG. 1159.—THE LIGAMENTUM DENTICULATUM, WHICH SUPPORTS THE SPINAL CORD WITHIN THE THECA VERTEBRALIS, AS SEEN IN PART OF THE CERVICAL PORTION OF THE CORD,¹ AFTER THE DURA MATER HAS BEEN INCISED FROM BEFORE, AND THE ARACHNOID REMOVED FROM THE FRONT OF THE CORD.

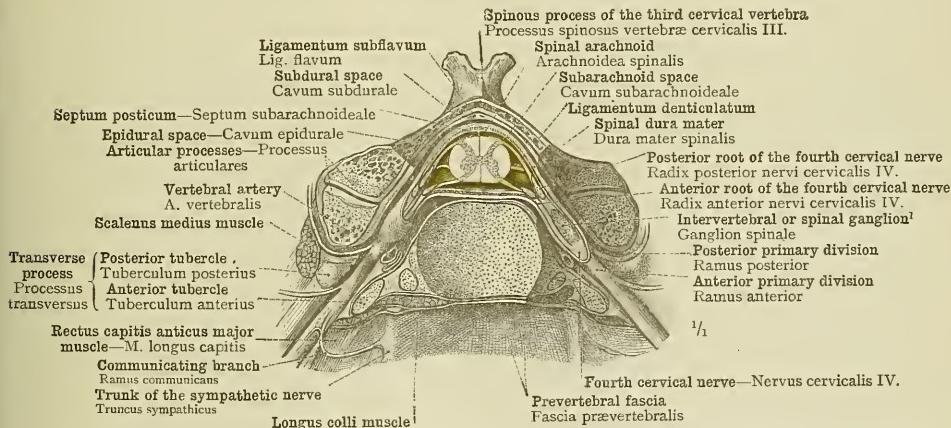
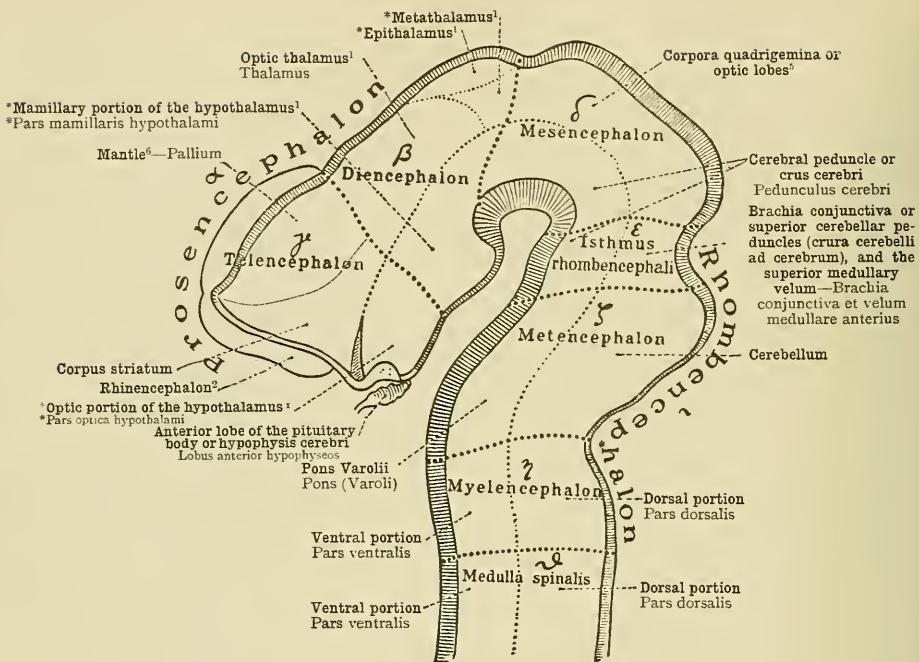


FIG. 1160.—TRANSVERSE SECTION THROUGH THE INTERVERTEBRAL DISC BETWEEN THE THIRD AND FOURTH CERVICAL VERTEBRAE. THE MEMBRANES OF THE SPINAL CORD ARE SEEN IN TRANSVERSE SECTION, AND THEIR RELATION TO THE EMERGING SPINAL NERVE ROOTS IS DISPLAYED.

The subarachnoid space is printed yellow; the subdural space, blue; and the epidural space, black.

* Also called the *ganglion of the posterior root*.

Meninges spinales—The membranes of spinal cord.



- a Anterior primary vesicle or fore-brain³
 8 Third secondary vesicle, mid-brain, or mesencephalon³
 η Fifth secondary vesicle or metencephalon³

- β Second secondary vesicle, interbrain, or thalamencephalon¹
 ε Isthmus between third and fourth cerebral vesicles or isthmus of His³
 θ Spinal cord

- γ First secondary vesicle or prosencephalon³
 ι Fourth secondary vesicle or epencephalon
 ι *Rhombencephalon,⁴ posterior primary vesicle, or hind-brain

FIG. 1161.—MEDIAN SAGITTAL SECTION THROUGH THE BRAIN OF A HUMAN EMBRYO AT THE END OF THE FIRST MONTH OF INTRA-UTERINE LIFE (MONTH OF FOUR WEEKS ONLY). DIAGRAMMATIC. AFTER W. HIS.

³ See Appendix, note 354.

² Rhinencephalon.—A name sometimes given to the combined olfactory and limbic lobes.

3 Some confusion is inevitable owing to the fact that the names given to the parts of the developing brain are used differently by Quain and by Von Langer and Toldt. The exact significance of the English renderings will be found in Quain's Anatomy, 1st ed., part i., p. 61. Here it is sufficient to indicate that: (1) the term *prosencephalon* is used by German authors to denote the *anterior primary vesicle*, or *forebrain*, as a whole; but in Quain it denotes the *first secondary vesicle* (called by Toldt *telencephalon*); (2) the *middle primary vesicle* produces one *secondary vesicle* only (the *mid-brain*); the terms *mid-brain* and *mesencephalon* may be applied to this indifferently; (3) the term *thalamencephalon*, as used by Quain, appears to denote the combined *isthmus rhombencephali* and *metencephalon* of the German authors; and (4) the term *metencephalon*, as used by Quain, denotes what Von Langer and Toldt call the *myelencephalon*.

⁴ For the exact significance of the term *rhombencephalon* as used by the author, see Appendix, notes 355 and 369.

⁵ Optic Lobes.—This name is given by Macalister to the structures which nearly all other English anatomists agree in calling the *corpora quadrigemina*. The fact that the *corpora quadrigemina* of the human brain are the homologues of the *corpora bigeminia* or optic lobes of the avian brain has not seemed an adequate reason for discarding an apt and well-established name.

⁶ Mantle or Pallium.—“The basal ganglia of the brain, together with the crura cerebri, pons, and medulla, are often distinguished as the stem of the brain [*caudex cerebri*, Ger. *Hirnstiel*] from the superimposed hemispheres, which are known as the mantle of the brain [*pallium*, Ger. *Hirnmantel*]” (Von Langer and Toldt, *op. cit.*, pp. 60, 70). Writing of the *first secondary vesicle* (*prosencephalon*), Quain (*op. cit.*, vol. iii., part i., pp. 69, 70) says: “The original vesicle is relatively small, although its lateral outgrowths form by far the largest portions of the brain in higher vertebrates. The *corpora striata* appear as thickenings of the floor of the hemisphere vesicles, and outside them the grey and white matter of the island of Reil becomes differentiated. The rest of the wall of the hemisphere vesicle (*mantle* of Reichert) eventually thickens to form the whole of the grey and white matter of the hemispheres.”

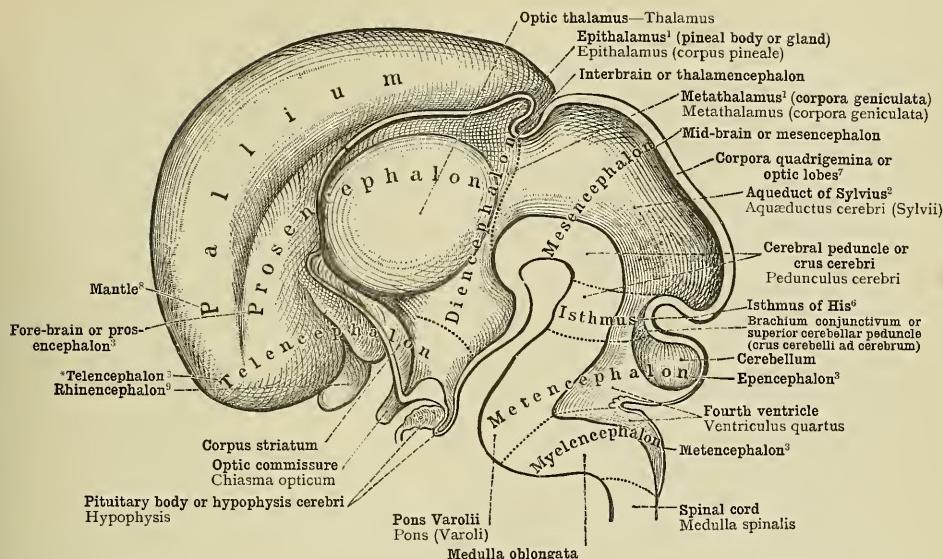


FIG. 1162.—MEDIAN SAGITTAL SECTION THROUGH THE BRAIN OF A HUMAN EMBRYO IN THE THIRD MONTH OF INTRA-UTERINE LIFE (MONTHS OF FOUR WEEKS EACH). AFTER W. HIS.

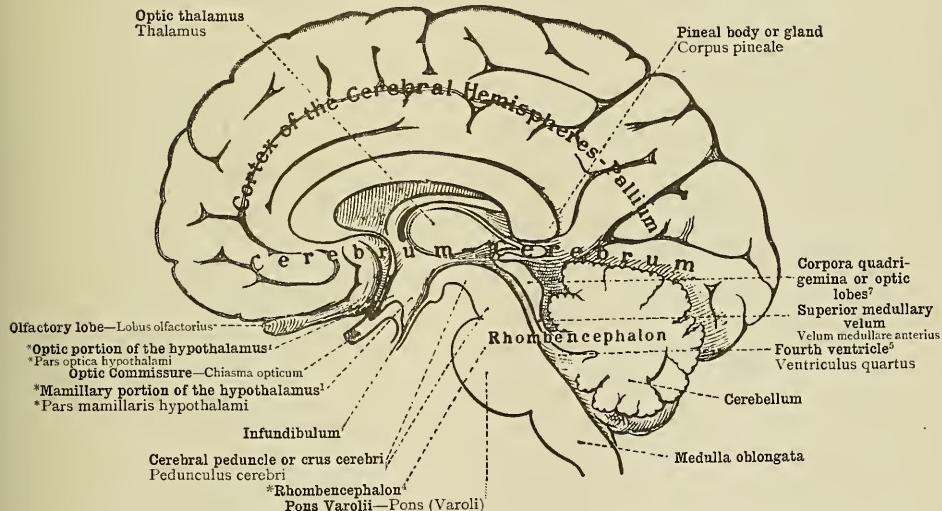


FIG. 1163.—MEDIAN SAGITTAL SECTION THROUGH THE ADULT HUMAN BRAIN. AFTER W. HIS.

¹ See Appendix, note 354.

² Or *iter a tertio ad quartum ventriculum.*

³ See note 3 to p. 760.

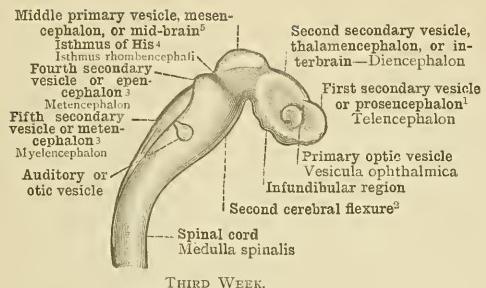
⁴ See Appendix, note 355.

⁵ Sometimes called *fossa rhomboidalis.* See also Appendix, note 355.

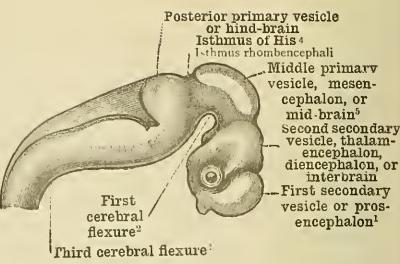
⁶ Isthmus of His.—This is the constriction between the third and fourth secondary vesicles. See Appendix, note 359.

⁸ See note 6 to p. 760.

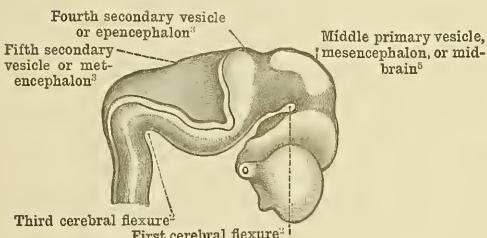
⁹ See note 2 to p. 760.



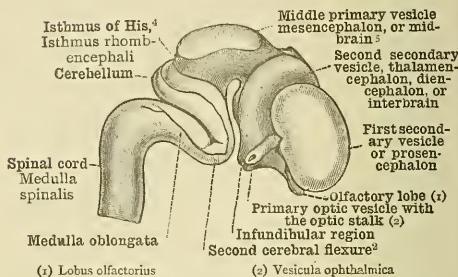
THIRD WEEK.



FOURTH WEEK.



FIFTH WEEK.



EIGHTH WEEK.

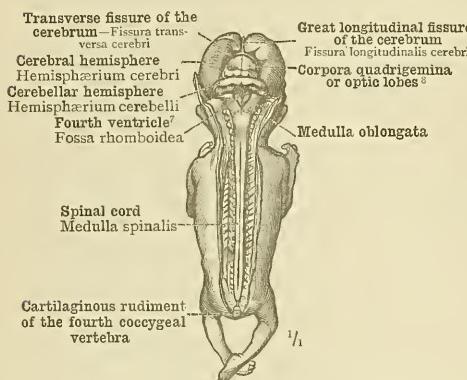
FIG. 1164.—RECONSTRUCTED FIGURES⁶ OF THE RUDIMENTARY BRAIN OF HUMAN EMBRYOS. AFTER W. HIS.

FIG. 1165.—BRAIN AND SPINAL CORD OF A HUMAN EMBRYO AT THE END OF THE THIRD MONTH OF INTRA-UTERINE LIFE (MONTHS OF FOUR WEEKS EACH), SEEN FROM BEHIND.

Body-length, 6·2 centimetres (2·44 inches).

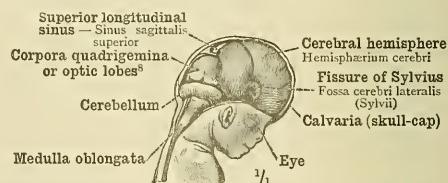
¹ Telencephalon, according to Toldt. See note 3 to p. 760.² Isthmus of His.—This is the constriction between the third and fourth secondary vesicles. See Appendix, note 356.³ See Appendix, note 358.⁴ By the term reconstructed figures (*Construktionsbilder*) is meant that these profile figures have been reconstructed from sections.⁵ See Appendix, note 355.⁶ See note 5 to p. 760.

FIG. 1166.—BRAIN OF THE EMBRYO SHOWN IN FIG. 1165, SEEN IN THIS CASE FROM THE RIGHT SIDE.



FIG. 1167.—INTERIOR OF THE RIGHT CEREBRAL HEMISPHERE, AS SEEN AFTER REMOVING THE CALVARIA (SKULL-CAP) AND THE CONVEX WALL OF THE CEREBRUM, IN THE EMBRYO SHOWN IN FIG. 1165.

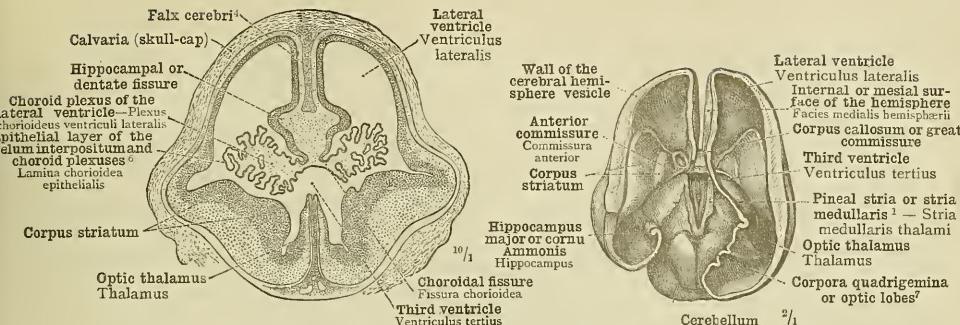


FIG. 1168.—CORONAL SECTION THROUGH THE HEAD, PASSING BETWEEN THE FRONTAL AND pariETAL LOBES OF THE BRAIN; FROM A HUMAN EMBRYO EIGHT WEEKS OLD.

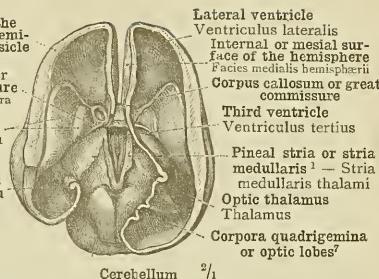


FIG. 1169.—THE INTERIOR OF THE CEREBRAL HEMISPHERE VESICLES OF A HUMAN EMBRYO AT THE END OF THE FOURTH MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 11·8 CENTIMETRES (4·65 INCHES). SEEN FROM ABOVE.

The cerebral hemisphere vesicles were opened by the removal of their convex summits.

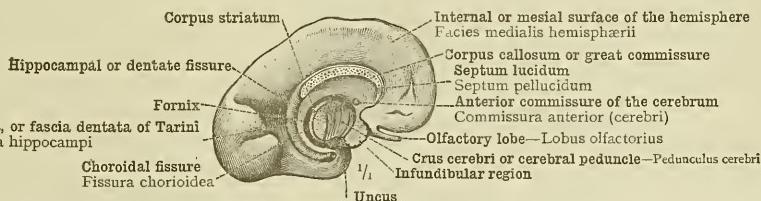


FIG. 1170.—LEFT CEREBRAL HEMISPHERE OF A HUMAN FETUS IN THE MIDDLE OF THE SIXTH MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 25 CENTIMETRES (9·84 INCHES). SEEN FROM THE INNER SIDE.

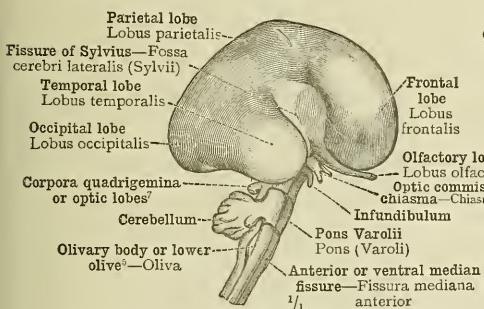


FIG. 1171.—BRAIN OF A HUMAN FETUS IN THE MIDDLE OF THE SIXTH MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 25 CENTIMETRES (9·84 INCHES). THE OUTER OR CONVEX SURFACE OF THE RIGHT HEMISPHERE.

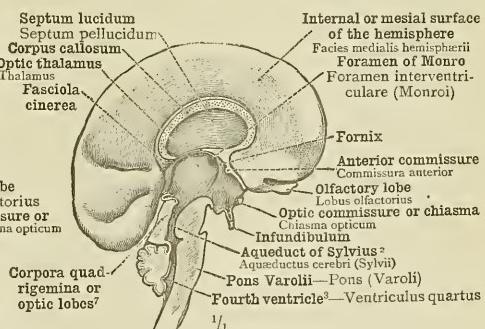


FIG. 1172.—MEDIAN SAGITTAL SECTION THROUGH THE BRAIN OF A HUMAN FETUS IN THE END OF THE SIXTH MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 29 CENTIMETRES (11·42 INCHES). INNER OR MESIAL SURFACE OF THE LEFT HEMISPHERE.

^a See Appendix, note 359.

^b Sometimes distinguished by the name of *fissus major* from the *fissus minor* or *fissus cerebelli*.

^c See Appendix, note 357.

^d Or iter a tertia ad quartum ventriculam.

^e See note 9 to p. 767.

^f See Appendix, note 355.

^g See note 5 to p. 760.

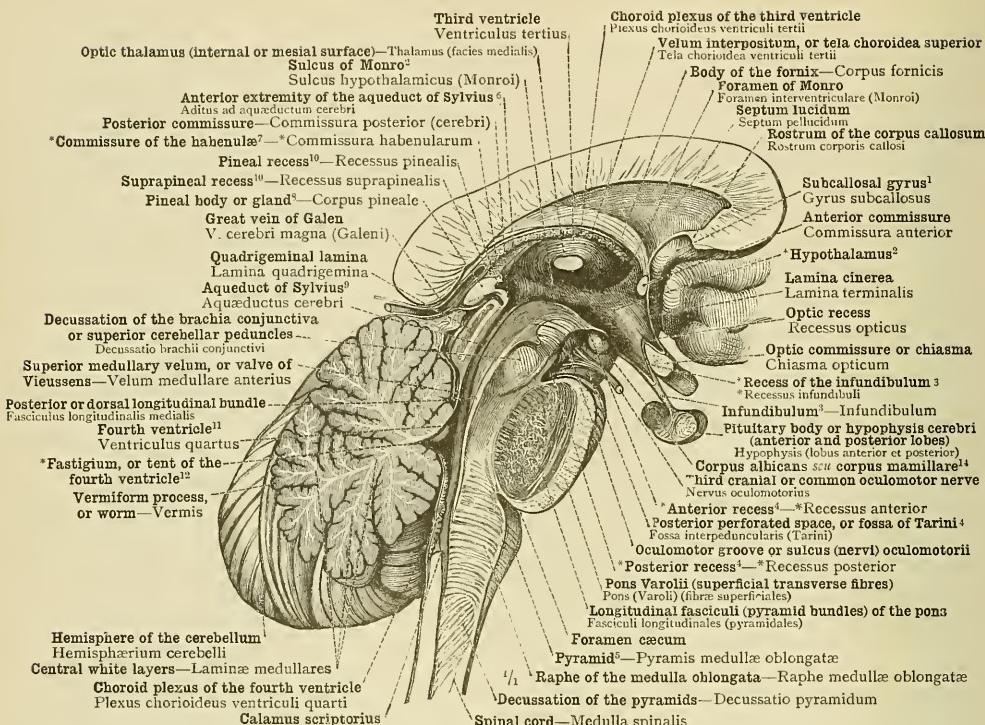


FIG. 1173.—PART OF A MEDIAN SAGITTAL SECTION THROUGH THE BRAIN. LEFT HALF. THE CONSTITUENTS OF THE *RHOMBENCEPHALON (see Appendix, note 335): THE MEDIULLA OBLONGATA, THE PONS VAROLII, AND THE CEREBELLUM. THE CONSTITUENTS OF THE MESENCEPHALON OR MID-BRAIN: THE QUADRIGEMINAL BODIES OR OPTIC LOBES (CORPORA QUADRIGEMINA—see note 5 to p. 760), AND THE CEREBRAL PEDUNCLES OR CRURA CEREBRI (PEDUNCULI CERERI). THE CONSTITUENTS OF THE THALAMENCEPHALON OR INTERBRAIN (*DIENCEPHALON—see Appendix, note 334): THE OPTIC THALAMUS AND THE HYPOTHALAMUS² WITH THE PITUITARY BODY, OR HYPOPHYSIS CEREBRI, AND THE PINEAL BODY OR GLAND, OR EPIPHYSIS CEREBRI—THE LAST-NAMED BEING COVERED BY THE CORPUS CALLOSUM OR GREAT COMMISSURE AND BY THE FORNIX. THE THIRD AND FOURTH VENTRICES (VENTRICULI TERTIUS ET QUARTUS), CONNECTED BY THE AQUEDUCTUS OF SYLVUS OR ITER A TERTIO AD QUARTUM VENTRICULUM (AQUEDUCTUS CERERI), AND CLOSED IN BY THE CHOROID FLEXURES OF THE THIRD AND FOURTH VENTRICLES RESPECTIVELY (PLEXUS CHORIOIDEUS VENTRICULI TERTII ET QUARTI). THE COMMISSURES OF THE CERERI,¹³ ANTERIOR AND POSTERIOR (COMMISSURA ANTERIOR ET COMMISSURA POSTERIOR CERERI), ARE CUT ACROSS IN THE MEDIAN PLANE. ON THE INTERNAL OR MESIAL SURFACE OF THE OPTIC THALAMUS THE MIDDLE OR SOFT COMMISSURE (MASSA INTERMEDIA) IS ALSO SEEN IN MEDIAN SAGITTAL SECTION. IN THE POSTERIOR PERFORATED SPACE OR FOSSA OF TARINI (FOSSA INTERPEDUNCULARIS TARINI) WE SEE THE *ANTERIOR RECESS (*RECESSUS ANTERIOR) BEHIND THE CORPUS ALBICANS SEU MAMILLARE, AND THE *POSTERIOR RECESS (*RECESSUS POSTERIOR) ABOVE THE UPPER MARGIN OF THE PONS VAROLII (see Appendix, note 302). IN THE SECTION OF THE CEREBELLUM WE SEE THE LAYERS OF WHITE SUBSTANCE (LAMINA^E MEDULLARES) RAMIFYING OUTWARDS FROM THE WHITE CENTRE, AND SURROUNDED BY THE GREY CORTICAL SUBSTANCE (SUBSTANTIA CORTICALIS CEREBELLI); TO THE ARBORESCENT APPEARANCE THUS PRODUCED THE NAME OF ARBOR VITE CEREBELLI IS GIVEN.

¹ Or the "so-called peduncle of the cortex callosum" (Quain)—"formerly known as *pedunculus corporis callosi*" (Von Langer and Todt).

² See Appendix, note 322.

³ See Appendix, note 360.

⁴ See Appendix, note 361.

⁵ See Appendix, note 362.

⁶ See Appendix, note 374.

⁷ Commissure of the Habenula—Macalister calls this the *transverse frenulum of the pineal body*; according to Quain, it is the middle of the upper or dorsal portion of the *posterior commissure* or *habenula*. See detailed explanation in Appendix, note 362.

⁸ Also known as the *comauran*, and as the *epiphysis cerebri*. See Appendix, note 365.

⁹ Or *iter a tertio ad quartum ventriculum*.

¹⁰ See Appendix, note 366.

¹¹ In the original German, the anterior and posterior commissures are spoken of as the *commissures of the third ventricle*.

¹² Also known as the *bulla of the fornix*.

¹³ See Appendix, note 356.

¹⁴ See Appendix, note 357.

*Rhombencephalon, Mesencephalon, and Thalamencephalon.

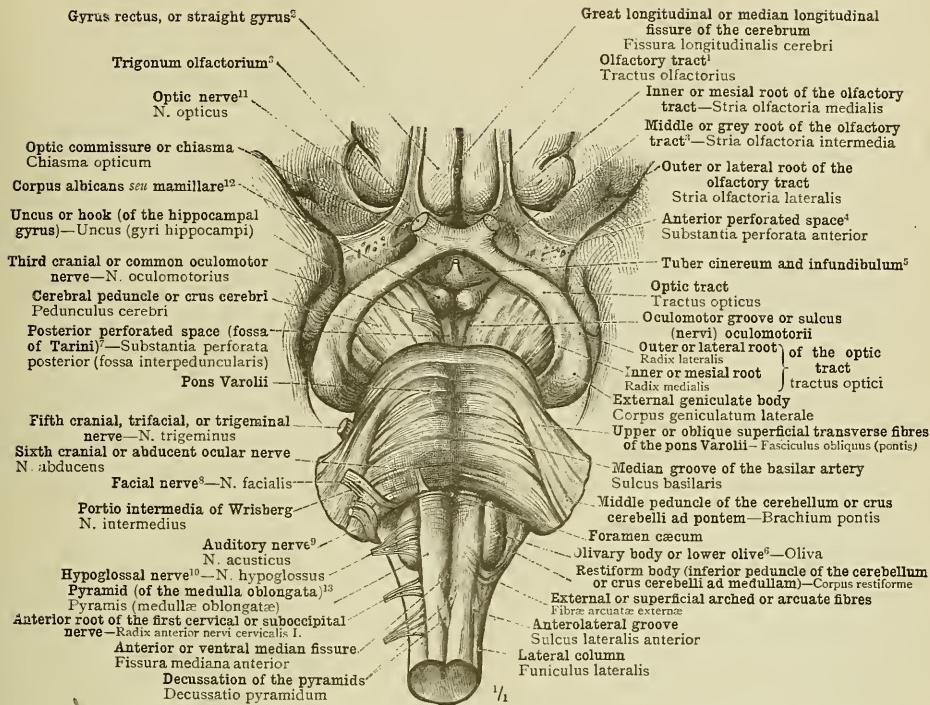


FIG. 1174.—THE MEDULLA OBLONGATA WITH THE PONS VAROLII, THE CEREBRAL PEDUNCLES OR CRURA CEREBRI (PEDUNCULI CEREBRI), AND THE ADJOINING PARTS AT THE FLOOR OF THE INTERBRAIN, SEEN FROM THE BASAL SURFACE.

The two temporal lobes of the cerebrum were drawn far apart, in order that the optic tract (which is partially covered by the inner margin of the temporal lobe—*i.e.*, by the hippocampal gyrus and its uncus), and the relation of this tract to the external geniculate body, might be fully displayed. Between the crura cerebri, diverging as they pass forwards from the pons Varolii, is the fossa of Tarini (fossa interpeduncularis), the floor of which is formed by the posterior perforated lamina or plate (*see note 7 below*); the outer boundary of the posterior perforated space is the oculomotor groove (sulcus nervi oculomotorii) in which the root fibres of the third cranial or common oculomotor nerve emerge from the brain. On the right side these root fibres have been preserved, but on the left they have been removed. By the separation of the two temporal lobes, the anterior perforated space (substantia perforata anterior—*see note 6 below*) has been exposed on either side, and its delimitation anteriorly by the trigonum olfactoriun and posteriorly by the optic tract has been displayed. The cerebellum has been cut away on either side along the line of entry of its middle peduncles, the crura cerebelli ad pontem (brachia pontis).

¹ Sometimes erroneously spoken of as the *olfactory nerve*.

² See Appendix, note 357.

³ See Appendix, note 368.

⁴ The grey matter forming the floor of the *anterior perforated space* is distinguished by the name of the *anterior perforated plate* or *lamina*. See also Appendix, note 362.

⁵ See Appendix, note 354.

⁶ See Appendix, note 327.

⁷ The grey matter forming the floor of the *posterior perforated space* is distinguished by the name of the *posterior perforated plate* or *lamina*.

⁸ Seventh cranial nerve in Soemmerring's enumeration, *portio dura* of the seventh in that of Willis.

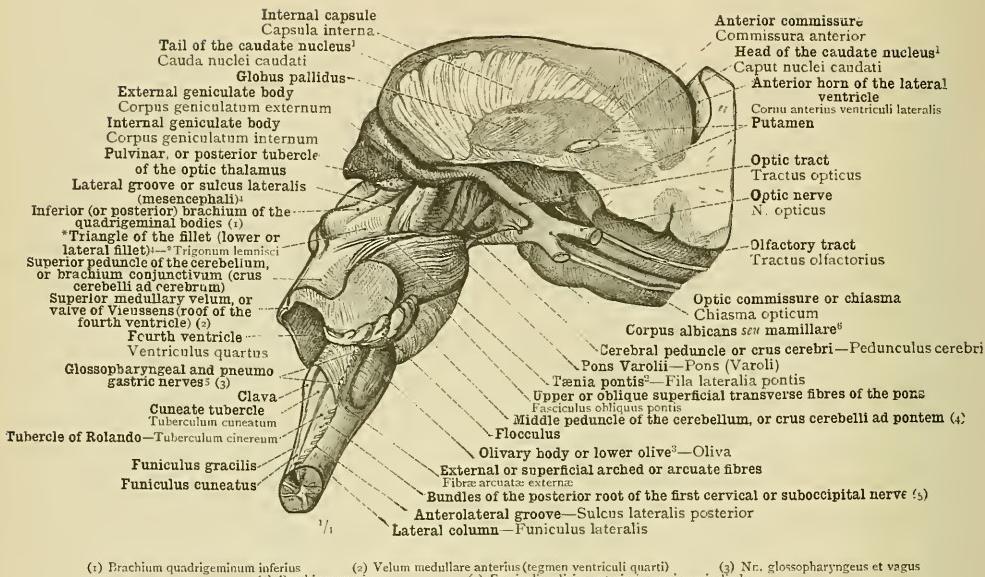
⁹ Eighth cranial nerve in Soemmerring's enumeration, *portio molle* of the seventh in that of Willis.

¹⁰ Twelfth cranial nerve in Soemmerring's enumeration, ninth cranial nerve in that of Willis; also known as the *lingual motor nerve*.

¹¹ Or second cranial nerve.

¹² Also known as the *bulb of the fornix*.

¹³ See Appendix, note 353.



(1) Brachium quadrigeminum inferius (2) Velum medullare anterius (tegmen ventriculi quarti) (3) N. glossopharyngeus et vagus
 (4) Brachium pontis (5) Fasciculi radicis posterioris nervi cervicalis I.

FIG. 1175.—THE MEDULLA OBLONGATA, WITH THE PONS VAROLII; THE CEREBRAL PEDUNCLES OR CRURA CEREBRI (PEDUNCULI CEREBRI), WITH THE ADJOINING *TRIANGLE OF THE FILLET (*TRIGONUM LENNISCI—see Appendix, note 36); THE QUADRIGEMINAL BODIES, CORPORA QUADRIGEMINA; THE PULVINAR, OR POSTERIOR TUBERCLE OF THE OPTIC THALAMUS; THE EXTERNAL AND INTERNAL GENICULATE BODIES, CORPUS GENICULATUM EXTERNUM ET CORPUS GENICULATUM INTERNUM; THE OPTIC TRACT (TRACTUS OPTICUS). SEEN FROM THE RIGHT SIDE.

The superior peduncle of the cerebellum, brachium conjunctivum, or crus cerebelli ad cerebrum, and the middle peduncle of the cerebellum, or crus cerebelli ad pontem (brachium pontis), were cut across at their junction with the cerebellum, of which last everything but the flocculus has been cut away. The preparation was separated from the right cerebral hemisphere by a section very nearly sagittal, passing through the caudate nucleus. The two parts of this nucleus, the head (caput) and the tail (cauda), are thus shown in sagittal section; by these the fibres (divided almost transversely) of the internal capsule (capsula interna, pedunculus corona radiatae) are embraced above and behind; below the internal capsule are the globus pallidus and the putamen of the lenticular nucleus, and also the anterior commissure in transverse section.

Corpus striatum.—In England the *corpus striatum* is regarded as containing two nuclei, the *caudate nucleus* and the *lenticular nucleus*, rather frequently spoken of as the *head* and *tail* of the *corpus striatum*, and sometimes also divided up as the *intraventricular portion* (*caput*) and *extraventricular portion* (*cauda*) of the *corpus striatum*. The *corpus striatum* themselves are sometimes spoken of as the *gyrus* of the cerebral hemisphere. The anterior, larger extremity of the caudate nucleus is called the *head* or *caput*; the posterior, smaller extremity, the *tail* or *cauda*. Von Langer and Toldt regard the *lenticular nucleus* (*nucleus lentiformis*) as an independent mass of grey matter, not forming part of the *corpus striatum*. This latter, as it appears in the outer wall of the anterior horn of the lateral ventricle, the German authors divide into two portions: an anterior, *caput corporis striati*, and a posterior, *cauda corporis striati* (Fig. 1176, 567); but the corresponding English terms “*head*” and “*tail* of the *corpus striatum*” are not used by Quain. The *nucleus caudatus* is the grey matter of the *corpus striatum*, and the names of the subdivisions of this nucleus, *caput nucleus caudatus* and *cauda nucleus caudatus*, are adopted by the German authors exactly as they are given in English as *caput nucleus caudatus* and *cauda nucleus caudatus*.

Tenia Pontis.—Von Langer and Toldt describe in the following terms the fibres called by them the “*lateral strands of the pons* (op. cit., p. 615): “Not infrequently, at the upper margin of the pons Varolii, we see one or two slender separate bundles of fibres which run across the peduncles of the cerebrum to join the superior peduncles of the cerebellum; these are called *fila lateralia pontis*.” The reference to these fibres in Quain’s “*Anatomy*” (vol. iii., part I., p. 115) is very brief: “Some horizontal white striae usually pass out of the grey matter [of the posterior perforated space] and turn round the peduncles [of the cerebrum] close to the upper border of the pons, entering which they reach eventually the medullary centre of the cerebellum (*tegmen pontis*).”

See Appendix, note 36. The *glossopharyngeal* is the ninth, and the *pneumogastric* (or *vagus*) is the tenth, cranial nerve in Stommering’s enumeration. In that of Willis they constitute the *first* and *second trunks*, respectively, of the *eighth cranial nerve*.

⁶ Also known as the *bulb of the fornix*.

*Rhombencephalon, Mesencephalon, and Thalamencephalon.

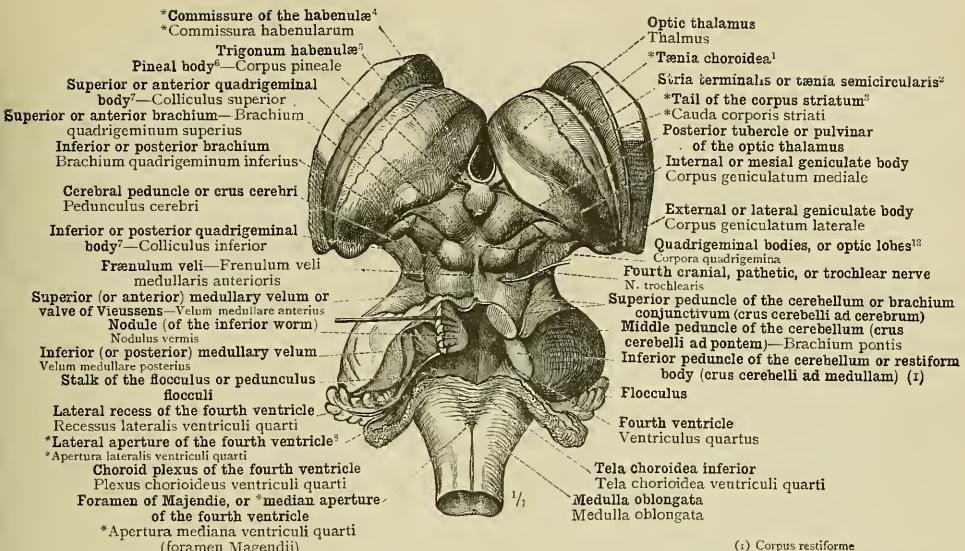


FIG. 1176.—THE MEDULLA OBLONGATA, THE CORPORA QUADRIGEMINA OR OPTIC LOBES WITH THEIR BRACHIA, THE OPTIC THALAMI, AND THE INTERNAL AND EXTERNAL GENICULATE BODIES; SEEN FROM THE DORSAL SIDE.

The tela choroidea inferior (tela choroidea ventriculi quarti), forming the roof of the lower part of the fourth ventricle, has been preserved; on either side, however, the outer part of the choroid plexuses of the fourth ventricle has been separated from the stalk of the flocculus or pedunculus flocculi (the outer thickened part of the lower free edge of the inferior, or posterior, medullary velum), and the lateral recesses of the fourth ventricle have thus been opened from behind. The upper part of the fourth ventricle has been opened by a median sagittal section through the worm of the cerebellum and part of the superior, or anterior, medullary velum or valve of Vieussens. The greater part of the cerebellum has been removed; the left half only of the nodulus with the flocculus and its stalk and the inferior, or posterior, medullary velum being retained.

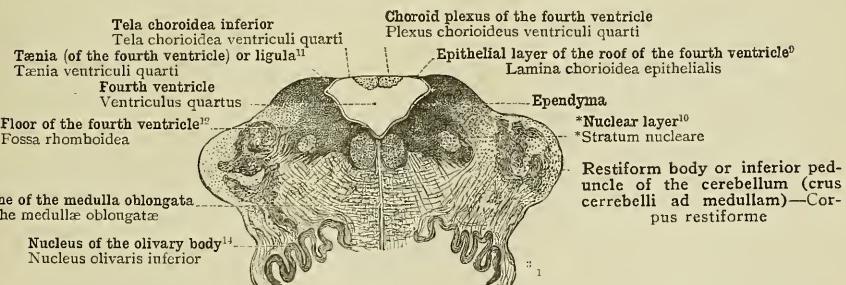


FIG. 1177.—THE LOWER PART OF THE FOURTH VENTRICLE, VENTRICULUS QUARTUS, IN CORONAL SECTION (SEMDIAGRAMMATIC).

¹ See Appendix, note 370.

² See note ¹ to p. 784.

³ I.e., surface of the tail of the caudate nucleus as it appears in the wall of the lateral ventricle. See note ¹ to p. 766.

⁵ See Appendix, note 365.

⁴ See Appendix, note 371.

⁸ See Appendix, note 373.

¹⁰ See Appendix, note 374.

⁷ See Appendix, note 372.

¹¹ See note ¹ to p. 724.

¹² See Appendix, note 355.

¹⁰ See Appendix, note 373.

¹³ See note ¹ to p. 785.

¹³ See note 3 to p. 765.

¹⁴ See Appendix, note 365.

*Rhombencephalon, Mesencephalon, and Thalamencephalon.

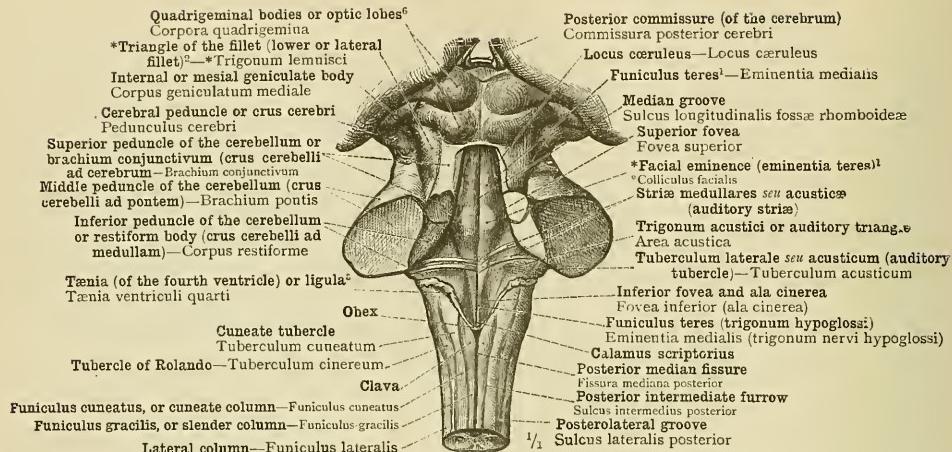


FIG. 1178.—THE FLOOR OF THE FOURTH VENTRICLE (FOSSA RHOMBOIDEA—see Appendix, note 355), DISPLAYED BY THE REMOVAL OF THE POSTERIOR WALL (ROOF) OF THE VENTRICLE AND ALSO OF THE CEREBELLUM. THE VENTRICLE IS SEEN TO BE BOUNDED LATERALLY BY THE RESTIFORM BODIES BELOW, AND BY THE SUPERIOR PEDUNCLES OF THE CEREBELLUM ABOVE; AND THE CONTINUITY OF ITS WALLS WITH THE SUBSTANCE OF THE MID-BRAIN IS MANIFEST.

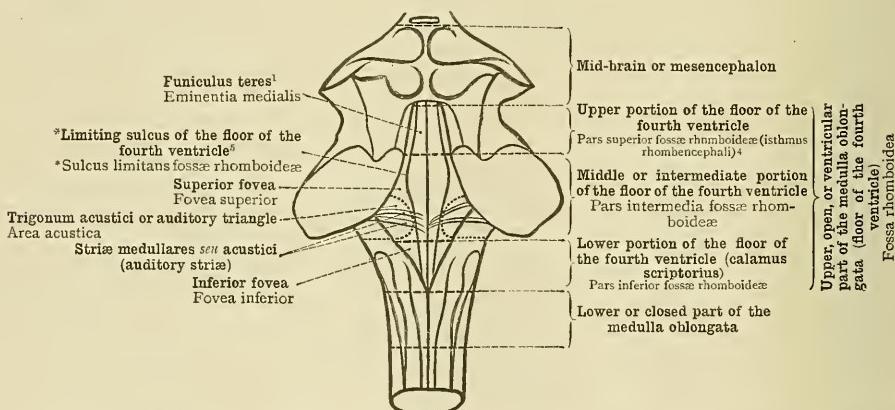


FIG. 1179.—SUBDIVISIONS OF THE MEDULLA OBLONGATA AND THE FLOOR OF THE FOURTH VENTRICLE (DIAGRAMMATIC).

¹ See Appendix, note 376.

² See Appendix, note 369.

³ See note 1 to p. 784.

⁴ See Appendix, note 377.

⁵ See note 5 to p. 760.

⁶ See note 5 to p. 760.

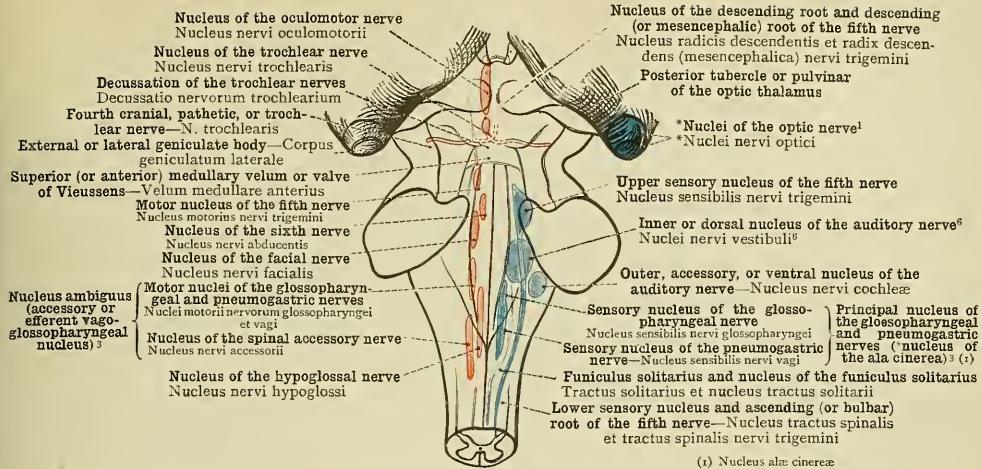


FIG. 1180.—THE NUCLEI OF ORIGIN OF THE CRANIAL NERVES, NUCLEI ORIGINIS NERVORUM CEREBRALUM, IN THE *RHOMBENCEPHALON AND MESENCEPHALON; SEEN FROM BEHIND, IN DIAGRAMMATIC PROJECTION.

The efferent or motor nuclei are represented on the left side only, and are coloured red; the afferent or sensory nuclei are represented on the right side only and are coloured blue.

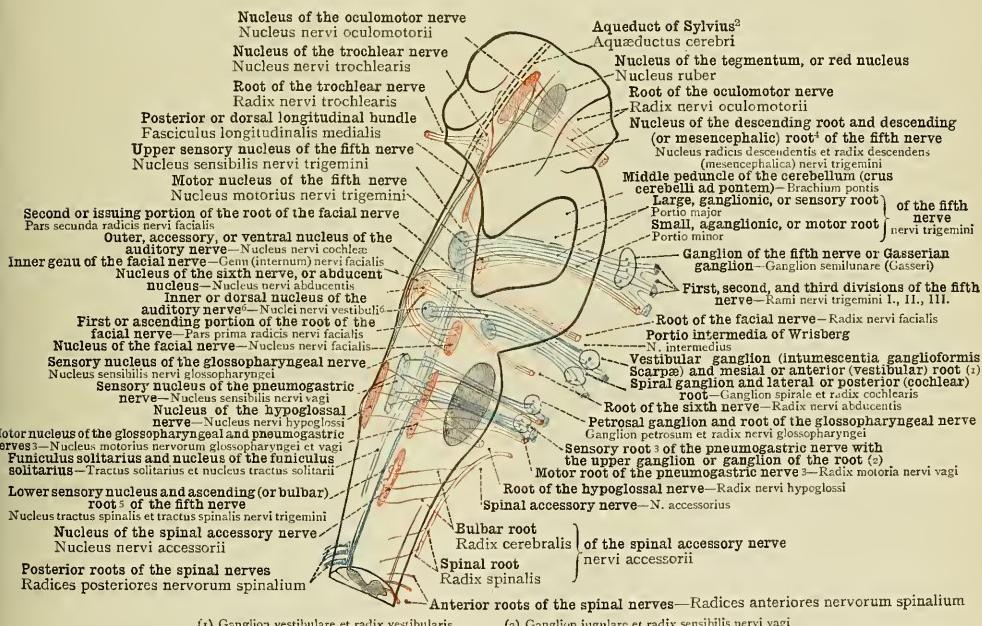


FIG. 1181.—THE NUCLEI OF ORIGIN OF THE CRANIAL NERVES, NUCLEI ORIGINIS NERVORUM CEREBRALUM, IN THE *RHOMBENCEPHALON AND MESENCEPHALON; SEEN FROM THE SIDE, IN DIAGRAMMATIC PROJECTION.

The efferent or motor nuclei and roots are coloured red; the afferent or sensory nuclei and roots are coloured blue.

¹ See Appendix, note 378.

² Or iter a tertio ad quartum ventriculum.

³ See Appendix, note 379.

⁴ Called by Gowers the *upper root*.

⁵ Called by Gowers the *lower root*.

⁶ Nuclei Nervi Vestibuli.—The author uses the term *nuclei* in the plural because, according to his view, "the vestibular root of the auditory nerve passes chiefly to the *nucleus* of Deiters, but in part also to the *dorsal nucleus*" (Von Langer and Toldt, pp. cit., p. 649). According to Quain, on the other hand, most of the fibres of the vestibular root pass to the dorsal nucleus, and the connexion of this root with the nucleus of Deiters is doubtful.

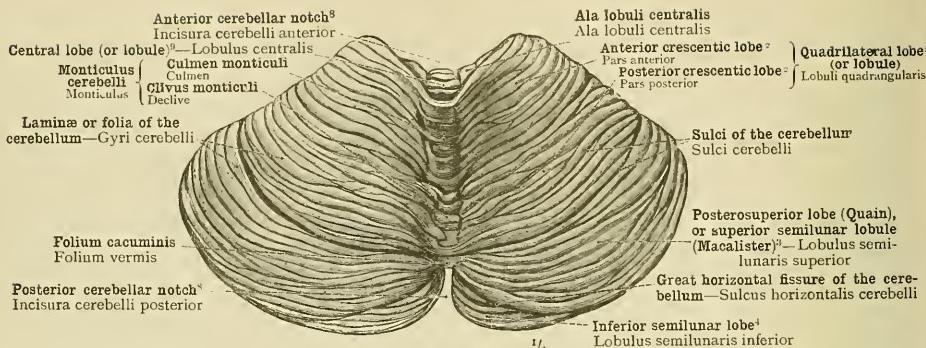


FIG. 1182.—THE CEREBELLUM, SEPARATED FROM ITS ATTACHMENTS. UPPER SURFACE, FACIES SUPERIOR. THE SUBDIVISION OF THE UPPER WORM OR SUPERIOR VERMIFORM PROCESS (VERMIS SUPERIOR) INTO THE CENTRAL LOBE OR LOBULE (LOBULUS CENTRALIS), THE MONTICULUS—CONSISTING OF AN ANTERIOR PART OR CULMEN AND A POSTERIOR PART OR CLIVUS (DECLIVE)—AND THE FOLIUM CACUMINIS (FOLIUM VERMIS). THE SUBDIVISION OF THE HEMISPHERES (HÉMISPHERIA CEREBELLI) INTO THE ALA LOBULI CENTRALIS, THE QUADRILATERAL LOBE (LOBULUS QUADRANGULARIS²), AND THE POSTEROSUPERIOR LOBE OR SUPERIOR SEMILUNAR LOBULE (LOBULUS SEMILUNARIS SUPERIOR³).¹

Regarding the nomenclature of the parts of the cerebellum in general, see Appendix, note ³⁸.

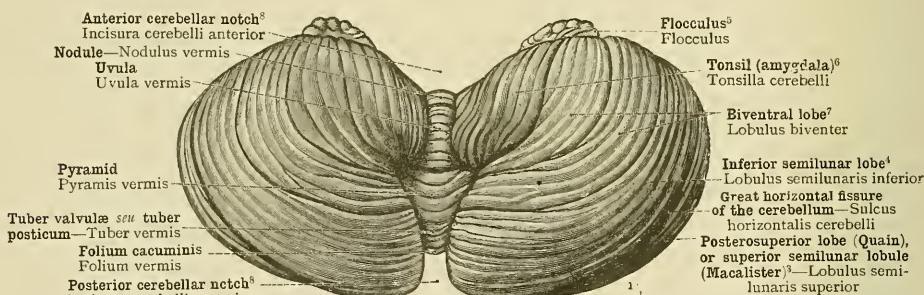


FIG. 1183.—THE INFERIOR SURFACE OF THE CEREBELLUM, FACIES INFERIOR CEREBELLI. THE SUBDIVISION OF THE LOWER WORM OR INFERIOR VERMIFORM PROCESS (VERMIS INFERIOR) INTO THE TUBER VALVULÆ SEU TUBER POSTICUM (TUBER VERMIS), THE PYRAMID (PYRAMIS VERMIS), THE UVULA (UVULA VERMIS), AND THE NODULE (NODULUS VERMIS). THE SUBDIVISION OF THE HEMISPHERES (HÉMISPHERIA CEREBELLI) INTO THE INFERIOR SEMILUNAR LOBE OR MARGINAL LOBULE (LOBULUS SEMILUNARIS INFERIOR⁴), THE BIVENTRAL LOBE OR CUNEIFORM OR DIGASTRIC LOBULE (LOBULUS BIVENTER), THE TONSIL OR AMYGDALA (TONSILLA CEREBELLI⁶), AND THE FLOCCULUS OR SUEPEDUNCULAR LOBEE (FLOCCULUS).¹

¹ See Appendix, note ³⁸.

² See Appendix, note ³⁸.

³ Ellis (*op. cit.*) calls this the *posterior lobe* (of the upper surface).

⁴ Called by Macalister the *marginal lobule*, and by Ellis the *posterior lobe* (of the under surface). See also Appendix, note ³⁸.

⁵ Ellis gives *subpeduncular lobe* as an alternative name for the *flocculus*.

⁶ The *tonsil* or *amygdala* of the cerebellum is by Macalister called the *tonsillite lobe*, and by Ellis the *amygdaloïd lobe*.

⁷ By some writers the *biventer* is called the *cuneiform* or *digastric lobule*. See also Appendix, note ³⁸.

⁸ *Cerebellar Notches*—Alternative names for these are given by Quain—viz., for the *posterior notch*, *incisura marsupialis*; and for the *anterior notch*, *incisura semilunaris*.

⁹ See Appendix, note ³⁸.

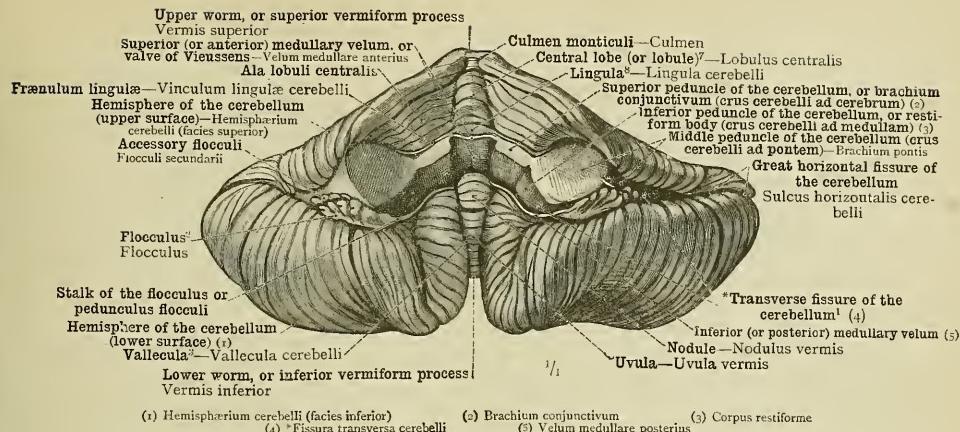


FIG. 1184.—THE CEREBELLUM, SEPARATED FROM ITS ATTACHMENTS, SEEN FROM BEFORE. THE ENTRANCE OF THE THREE PAIRS OF CEREBELLAR PEDUNCLES (VIZ., THE MIDDLE PEDUNCLES, BRACHIA PONTIS, THE INFERIOR PEDUNCLES, CORPORA RESTIFORMIA, AND THE SUPERIOR PEDUNCLES, BRACHIA CONJUNCTIVA, WITH THE SUPERIOR MEDULLARY VELUM OR VALVE OF VIEUSSENS) INTO THE MEDULLARY CENTRE OF THE CEREBELLUM THROUGH THE *TRANSVERSE FISSURE OF THE CEREBELLUM, *FISSURA TRANSVERSA CEREBELLI (i.e., THE ANTERIOR PART OF THE GREAT HORIZONTAL FISSURE). THE LINGULA OF THE UPPER WORM, LINGULA CEREBELLI, WITH ITS LATERAL EXTENSIONS, FRÄNELUM LINGULÆ (VINCULA LINGULÆ CEREBELLI).

Regarding the nomenclature of the parts of the cerebellum, see Appendix, note ³⁸⁰.

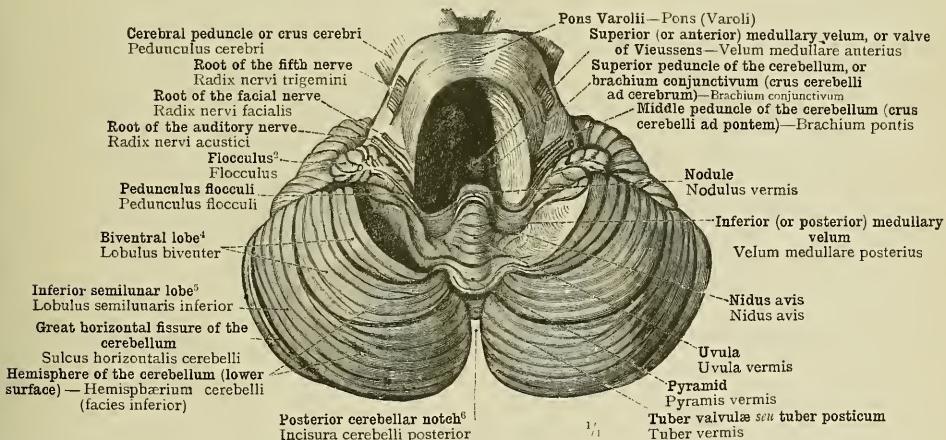


FIG. 1185.—THE LOWER SURFACE OF THE CEREBELLUM WITH THE PONS VAROLII. BY THE REMOVAL OF A PORTION OF THE LATTER, THE LOWER SURFACE OF THE SUPERIOR (OR ANTERIOR) MEDULLARY VELUM OR VALVE OF VIEUSSENS (VELUM MEDULLARE ANTERIUS) HAS BEEN EXPOSED; AND BY SHELLING OUT THE TONSIL (ANYGDALA) THE INFERIOR (OR POSTERIOR) MEDULLARY VELUM (VELUM MEDULLARE POSTERIUS), WITH THE PEDUNCULUS FLOCCULI, HAS BEEN LAID BARE (see Appendix, note ³⁸⁰).

¹ See Appendix, note ³⁷³.

² Or subpeduncular lobe (Ellis).

³ Vallecula.—Macalister makes use of the English equivalent, *valley*, for this median fossa.

⁴ By Macalister called the *cuneiform* or *diastrophic lobe*. See also Appendix, note ³⁸⁰.

⁵ Called by Macalister the *marginal lobe*, and by Ellis the *posterior lobe* (of the under surface). See also Appendix, note ³⁸⁰.

⁶ See note ⁸ to p. 770.

⁷ See Appendix, note ³⁷⁴.

⁸ Or *linguette laminosa* (Macalister).

⁹ See Appendix, note ³⁷⁴.

¹⁰ See Appendix, note ³⁷⁴.

¹¹ See Appendix, note ³⁷⁴.

¹² See Appendix, note ³⁷⁴.

¹³ See Appendix, note ³⁷⁴.

¹⁴ See Appendix, note ³⁷⁴.

¹⁵ See Appendix, note ³⁷⁴.

¹⁶ See Appendix, note ³⁷⁴.

¹⁷ See Appendix, note ³⁷⁴.

¹⁸ See Appendix, note ³⁷⁴.

¹⁹ See Appendix, note ³⁷⁴.

²⁰ See Appendix, note ³⁷⁴.

²¹ See Appendix, note ³⁷⁴.

²² See Appendix, note ³⁷⁴.

²³ See Appendix, note ³⁷⁴.

²⁴ See Appendix, note ³⁷⁴.

²⁵ See Appendix, note ³⁷⁴.

²⁶ See Appendix, note ³⁷⁴.

²⁷ See Appendix, note ³⁷⁴.

²⁸ See Appendix, note ³⁷⁴.

²⁹ See Appendix, note ³⁷⁴.

³⁰ See Appendix, note ³⁷⁴.

³¹ See Appendix, note ³⁷⁴.

³² See Appendix, note ³⁷⁴.

³³ See Appendix, note ³⁷⁴.

³⁴ See Appendix, note ³⁷⁴.

³⁵ See Appendix, note ³⁷⁴.

³⁶ See Appendix, note ³⁷⁴.

³⁷ See Appendix, note ³⁷⁴.

³⁸ See Appendix, note ³⁷⁴.

³⁹ See Appendix, note ³⁷⁴.

⁴⁰ See Appendix, note ³⁷⁴.

⁴¹ See Appendix, note ³⁷⁴.

⁴² See Appendix, note ³⁷⁴.

⁴³ See Appendix, note ³⁷⁴.

⁴⁴ See Appendix, note ³⁷⁴.

⁴⁵ See Appendix, note ³⁷⁴.

⁴⁶ See Appendix, note ³⁷⁴.

⁴⁷ See Appendix, note ³⁷⁴.

⁴⁸ See Appendix, note ³⁷⁴.

⁴⁹ See Appendix, note ³⁷⁴.

⁵⁰ See Appendix, note ³⁷⁴.

⁵¹ See Appendix, note ³⁷⁴.

⁵² See Appendix, note ³⁷⁴.

⁵³ See Appendix, note ³⁷⁴.

⁵⁴ See Appendix, note ³⁷⁴.

⁵⁵ See Appendix, note ³⁷⁴.

⁵⁶ See Appendix, note ³⁷⁴.

⁵⁷ See Appendix, note ³⁷⁴.

⁵⁸ See Appendix, note ³⁷⁴.

⁵⁹ See Appendix, note ³⁷⁴.

⁶⁰ See Appendix, note ³⁷⁴.

⁶¹ See Appendix, note ³⁷⁴.

⁶² See Appendix, note ³⁷⁴.

⁶³ See Appendix, note ³⁷⁴.

⁶⁴ See Appendix, note ³⁷⁴.

⁶⁵ See Appendix, note ³⁷⁴.

⁶⁶ See Appendix, note ³⁷⁴.

⁶⁷ See Appendix, note ³⁷⁴.

⁶⁸ See Appendix, note ³⁷⁴.

⁶⁹ See Appendix, note ³⁷⁴.

⁷⁰ See Appendix, note ³⁷⁴.

⁷¹ See Appendix, note ³⁷⁴.

⁷² See Appendix, note ³⁷⁴.

⁷³ See Appendix, note ³⁷⁴.

⁷⁴ See Appendix, note ³⁷⁴.

⁷⁵ See Appendix, note ³⁷⁴.

⁷⁶ See Appendix, note ³⁷⁴.

⁷⁷ See Appendix, note ³⁷⁴.

⁷⁸ See Appendix, note ³⁷⁴.

⁷⁹ See Appendix, note ³⁷⁴.

⁸⁰ See Appendix, note ³⁷⁴.

⁸¹ See Appendix, note ³⁷⁴.

⁸² See Appendix, note ³⁷⁴.

⁸³ See Appendix, note ³⁷⁴.

⁸⁴ See Appendix, note ³⁷⁴.

⁸⁵ See Appendix, note ³⁷⁴.

⁸⁶ See Appendix, note ³⁷⁴.

⁸⁷ See Appendix, note ³⁷⁴.

⁸⁸ See Appendix, note ³⁷⁴.

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⁹⁰ See Appendix, note ³⁷⁴.

⁹¹ See Appendix, note ³⁷⁴.

⁹² See Appendix, note ³⁷⁴.

⁹³ See Appendix, note ³⁷⁴.

⁹⁴ See Appendix, note ³⁷⁴.

⁹⁵ See Appendix, note ³⁷⁴.

⁹⁶ See Appendix, note ³⁷⁴.

⁹⁷ See Appendix, note ³⁷⁴.

⁹⁸ See Appendix, note ³⁷⁴.

⁹⁹ See Appendix, note ³⁷⁴.

¹⁰⁰ See Appendix, note ³⁷⁴.

¹⁰¹ See Appendix, note ³⁷⁴.

¹⁰² See Appendix, note ³⁷⁴.

¹⁰³ See Appendix, note ³⁷⁴.

¹⁰⁴ See Appendix, note ³⁷⁴.

¹⁰⁵ See Appendix, note ³⁷⁴.

¹⁰⁶ See Appendix, note ³⁷⁴.

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¹²³ See Appendix, note ³⁷⁴.

¹²⁴ See Appendix, note ³⁷⁴.

¹²⁵ See Appendix, note ³⁷⁴.

¹²⁶ See Appendix, note ³⁷⁴.

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¹²⁸ See Appendix, note ³⁷⁴.

¹²⁹ See Appendix, note ³⁷⁴.

¹³⁰ See Appendix, note ³⁷⁴.

¹³¹ See Appendix, note ³⁷⁴.

¹³² See Appendix, note ³⁷⁴.

¹³³ See Appendix, note ³⁷⁴.

¹³⁴ See Appendix, note ³⁷⁴.

¹³⁵ See Appendix, note ³⁷⁴.

¹³⁶ See Appendix, note ³⁷⁴.

¹³⁷ See Appendix, note ³⁷⁴.

¹³⁸ See Appendix, note ³⁷⁴.

¹³⁹ See Appendix, note ³⁷⁴.

¹⁴⁰ See Appendix, note ³⁷⁴.

¹⁴¹ See Appendix, note ³⁷⁴.

¹⁴² See Appendix, note ³⁷⁴.

¹⁴³ See Appendix, note ³⁷⁴.

¹⁴⁴ See Appendix, note ³⁷⁴.

¹⁴⁵ See Appendix, note ³⁷⁴.

¹⁴⁶ See Appendix, note ³⁷⁴.

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¹⁵⁰ See Appendix, note ³⁷⁴.

¹⁵¹ See Appendix, note ³⁷⁴.

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¹⁵⁴ See Appendix, note ³⁷⁴.

¹⁵⁵ See Appendix, note ³⁷⁴.

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¹⁵⁹ See Appendix, note ³⁷⁴.

¹⁶⁰ See Appendix, note ³⁷⁴.

¹⁶¹ See Appendix, note ³⁷⁴.

¹⁶² See Appendix, note ³⁷⁴.

¹⁶³ See Appendix, note ³⁷⁴.

¹⁶⁴ See Appendix, note ³⁷⁴.

¹⁶⁵ See Appendix, note ³⁷⁴.

¹⁶⁶ See Appendix, note ³⁷⁴.

¹⁶⁷ See Appendix, note ³⁷⁴.

¹⁶⁸ See Appendix, note ³⁷⁴.

¹⁶⁹ See Appendix, note ³⁷⁴.

¹⁷⁰ See Appendix, note ³⁷⁴.

¹⁷¹ See Appendix, note ³⁷⁴.

¹⁷² See Appendix, note ³⁷⁴.

¹⁷³ See Appendix, note ³⁷⁴.

¹⁷⁴ See Appendix, note ³⁷⁴.

¹⁷⁵ See Appendix, note ³⁷⁴.

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¹⁸¹ See Appendix, note ³⁷⁴.

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¹⁸⁴ See Appendix, note ³⁷⁴.

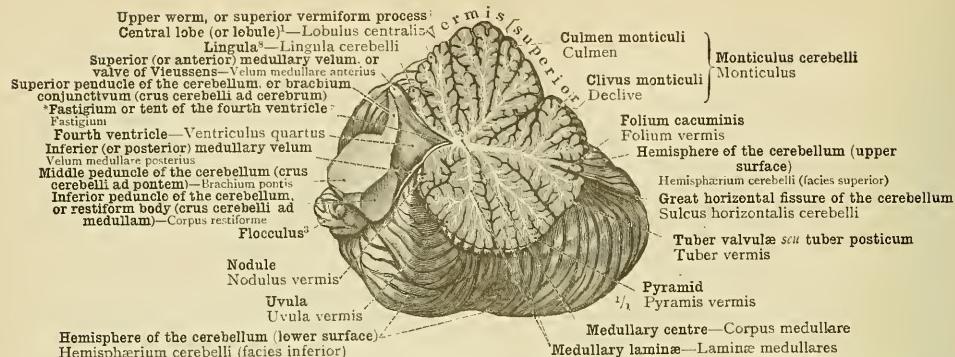


FIG. 1186.—MEDIAN SAGITTAL SECTION THROUGH THE WORM OR VERMIFORM PROCESS (VERMIS) OF THE CEREBELLUM. THE SUBDIVISIONS OF THE UPPER WORM OR SUPERIOR VERMIFORM PROCESS (VERMIS SUPERIOR) AND THE LOWER WORM OR INFERIOR VERMIFORM PROCESS (VERMIS INFERIOR). THE CONTINUITY OF THE SUPERIOR (OR ANTERIOR) MEDULLARY VELUM OR VALVE OF VIEUSSENS WITH THE MEDULLARY CENTRE OF THE WORM. THE TENT-SHAPED PROJECTION (*FASTIGIUM—see Appendix, note 3²⁰) IN THE ROOF OF THE FOURTH VENTRICLE.

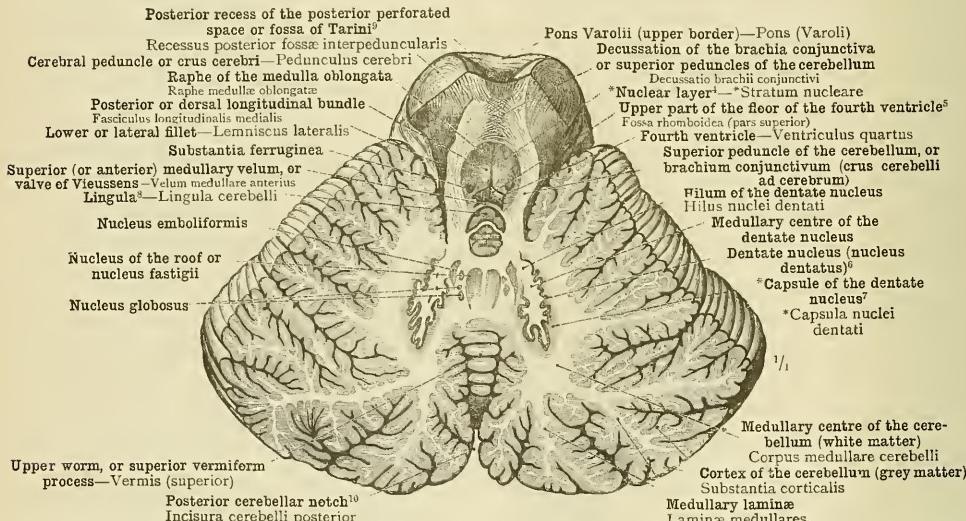


FIG. 1187.—SECTION THROUGH THE CEREBELLUM AND THE PEDUNCLES OF THE CEREBELLUM IN THE PLANE OF THE BRACHIA CONJUNCTIVA OR SUPERIOR PEDUNCLES OF THE CEREBELLUM. UPPER SURFACE OF LOWER SEGMENT. THE MEDULLARY CENTRE OR WHITE MATTER AND THE MEDULLARY LAMINAÆ OF THE HEMISPHERES OF THE CEREBELLUM. THE NUCLEI OF THE WHITE MATTER OF THE CEREBELLUM: THE DENTATE NUCLEUS, NUCLEUS DENTATUS (CORPUS DENTATUS, CORPUS CILIARE); THE NUCLEUS EMBOLIFORMIS; THE NUCLEUS GLOBOSUS; AND THE NUCLEUS FASTIGII. THE DECUSSTATION OF THE SUPERIOR PEDUNCLES OF THE CEREBELLUM, DECUSATIO BRACHII CONJUNCTIVI.¹¹

Regarding the nomenclature of the parts of the cerebellum, see Appendix, note 3²⁰.

¹ See Appendix, note 3²⁰.

² See Appendix, note 375.

³ Known also as the *corpus dentatum* or *corpus ciliare*.

⁴ Or *lingua et lamina* (Macalister).

⁵ See Appendix, note 355.

⁶ See Appendix, note 366.

⁷ See Appendix, note 384.

¹⁰ See note 8 to p. 770.

¹¹ *Decussatio brachii conjunctivorum*.—Thus in the original. Since, however, a single *brachium* cannot *decussate*, the name should be *decussatio brachiorum conjunctivorum*.

The Cerebellum.

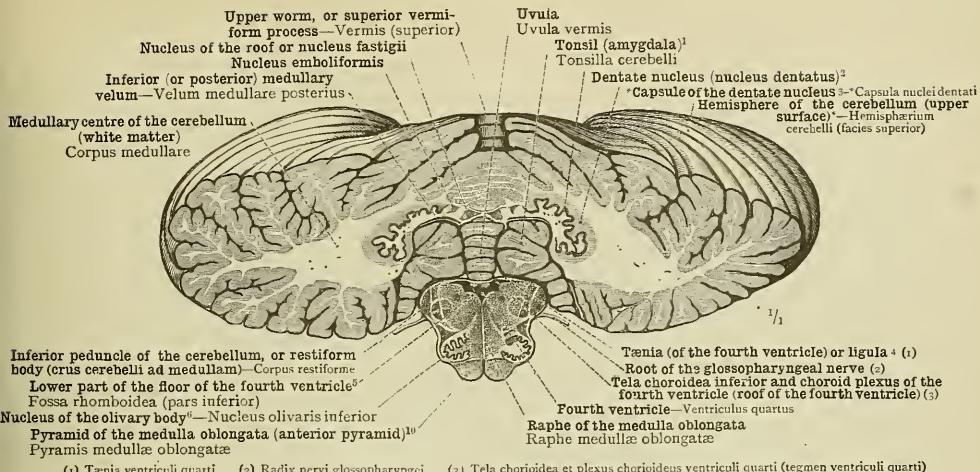


FIG. 1188.—CORONAL SECTION THROUGH THE CEREBELLUM AND THE MEDULLA OBLONGATA IN THE REGION OF THE RESTIFORM BODIES (INFERIOR PEDUNCLES OF THE CEREBELLUM, CRURA CEREBELLI AD MEDULLAM); THE RESPECTIVE RELATIONS OF THE MEDULLA AND THE CEREBELLUM TO THE LOWER PART OF THE FOURTH VENTRICLE. THE NUCLEI OF THE WHITE MATTER OF THE CEREBELLUM.

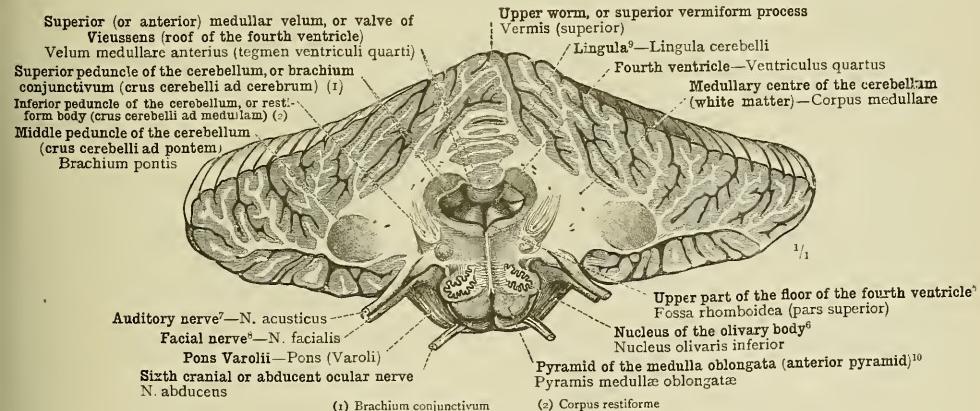


FIG. 1189.—CORONAL SECTION THROUGH THE CEREBELLUM AND THE MEDULLA OBLONGATA IN THE REGION OF THE BRACHIA CONJUNCTIVA OR SUPERIOR PEDUNCLES OF THE CEREBELLUM; THE RESPECTIVE RELATIONS OF THE MEDULLA AND THE CEREBELLUM TO THE UPPER PART OF THE FOURTH VENTRICLE. THE COURSE OF THE PEDUNCLES OF THE CEREBELLUM IN THE MEDULLARY CENTRE OR WHITE MATTER OF THE CEREBELLUM.

¹ The tonsil or amygdala of the cerebellum is by Macalister called the tonsillite lobe, and by Ellis the amygdaloid lobe.

² Known also as the corpus dentatum, or corpus ciliare.

³ See note ¹ to p. 784.

⁴ See Appendix, note 355.

⁵ Eighth cranial nerve in Soemmering's enumeration: *portio mollis* of the seventh cranial nerve in that of Willis.

⁶ Seventh cranial nerve in Soemmering's enumeration: *portio dura* of the seventh cranial nerve in that of Willis.

⁷ Or lingua taminosa (Macalister).

⁶ See Appendix, note 356.

⁷ See Appendix, note 357.

⁸ See Appendix, note 358.

⁹ See Appendix, note 359.

¹⁰ See Appendix, note 360.

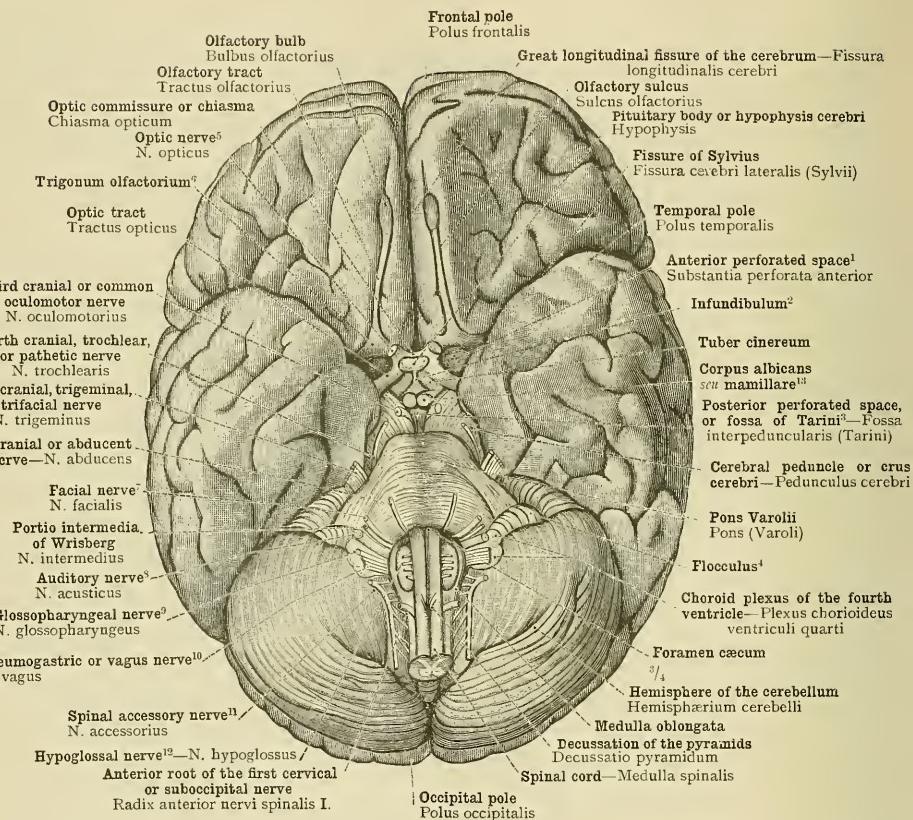


FIG. 1190.—THE INFERIOR SURFACE (BASE) OF THE BRAIN, BASIS ENCEPHALI, WITH THE EMERGING ROOTS OF THE CRANIAL NERVES, RADICES NERVORUM CEREBRALIUM. THE INFERIOR OR BASAL SURFACE OF THE CEREBRUM, FACIES BASALIS CEREBRI, IS CONCEALED BEHIND BY THE CEREBELLUM.

¹ The grey matter forming the floor of the anterior perforated space is distinguished by the name of the anterior perforated plate or lamina.

² See Appendix, note 361.

³ See Appendix, note 362.

⁴ Or subpeduncular lobe (Ellis).

⁵ Or second cranial nerve.

⁶ See Appendix, note 363.

⁷ Seventh cranial nerve in Soemmerring's enumeration; *portio dura* of the seventh cranial nerve in that of Willis.

⁸ Eighth cranial nerve in Soemmerring's enumeration; *portio molle* of the eighth cranial nerve in that of Willis.

⁹ Ninth cranial nerve in Soemmerring's enumeration; first trunk of the eighth cranial nerve in that of Willis.

¹⁰ Tenth cranial nerve in Soemmerring's enumeration; second trunk of the eighth cranial nerve in that of Willis.

¹¹ Eleventh cranial nerve in Soemmerring's enumeration; third trunk of the eighth cranial nerve in that of Willis.

¹² Twelfth cranial nerve in Soemmerring's enumeration, ninth in that of Willis; also known as the *lingual motor nerve*.

¹³ Also known as the *bulb of the fornix*.

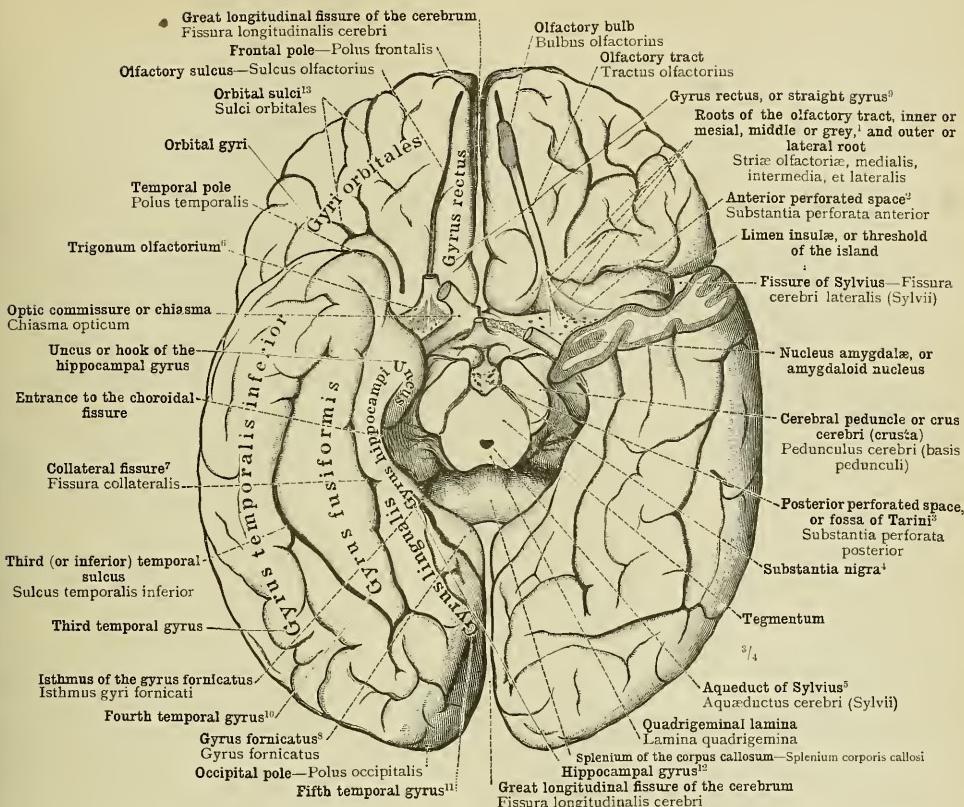


FIG. 1191.—THE INFERIOR OR BASAL SURFACE OF THE CEREBRUM, FACIES BASALIS CEREBRI; THE WHOLE EXTENT OF THIS SURFACE IS VISIBLE, THE MEDULLA OBLONGATA, PONS VAROLII, AND CEREBELLUM (*i.e.*, THE *RHOMBENCEPHALON—see Appendix, note 355) HAVING BEEN REMOVED BY A TRANSVERSE SECTION THROUGH THE MID-BRAIN. CONVOLUTIONS AND FURROWS OF THE HEMISPHERES, GYRI ET SULCI CEREBRI. THE FRONTAL, TEMPORAL, AND OCCIPITAL POLES OF THE HEMISPHERES.

The anterior extremity of the left temporal lobe has been cut away, the optic commissure or chiasma has been cut through in the median plane, and its left half has been removed. The anterior perforated space has thus been fully exposed on the left side, and its relations to the threshold of the island, limen insulae, and to the parts of the rhinencephalon situate on the mesial surface of the hemisphere, have been made manifest. The olfactory tract, tractus olfactorius, has been cut away on the right side, in order to display the olfactory sulcus.

¹ See Appendix, note 358.
² The grey matter forming the floor of the *anterior perforated space* is distinguished by the name of the *anterior perforated plate* or *lamina*.

³ The grey matter forming the floor of the *posterior perforated space* is distinguished by the name of the *posterior perforated plate* or *lamina*. See also Appendix, note 358.

⁴ Called by Macalister the *locus niger*.

⁵ Or iter a tertio ad quartum ventriculum.

⁶ See Appendix, note 358.

⁷ Sometimes regarded also as the *fourth temporal sulcus*.

⁸ See Appendix, note 357.

¹⁰ *Fourth Temporal Gyrus.*—The greater part of this gyrus was formerly known in England as the *fusiform lobule*; and the gyrus as a whole is called by Toldt *gyrus fusiformis*.

¹¹ *Fifth Temporal Gyrus.*—The author's name for this is *gyrus lingualis*, a modification of Huschke's *lingual lobule*; Wilder calls it the *subcalcarine gyrus*; and it is often known as the *infracalcarine gyrus*. In front it is continued into the *hippocampal gyrus*. See note 12 below.

¹² *Hippocampal Gyrus.*—This was formerly called the *subcortical cornu ammonis*; together with the *fifth temporal* or *infra-calcarine gyrus* (see note 11 above), it makes up the *uncinate gyrus*. See also Appendix, note 359.

¹³ *Orbital Sulcus.*—The principal sulci of the cerebral cortex of the frontal lobe very commonly communicate with one another, combining to form what is known in England as the *orbital* or *triradiate sulcus*.

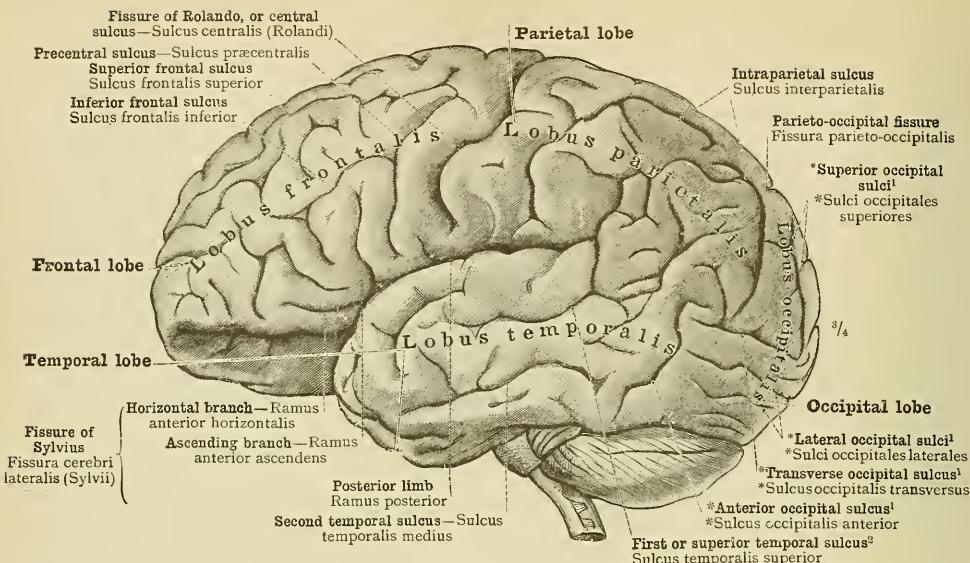


FIG. 1192.—THE CONVEX OR OUTER SURFACE, FACIES CONVEXA, OF THE LEFT CEREBRAL HEMISPHERE, SEEN FROM THE SIDE. FRONTAL, PARIAL, TEMPORAL, AND OCCIPITAL LOBES.

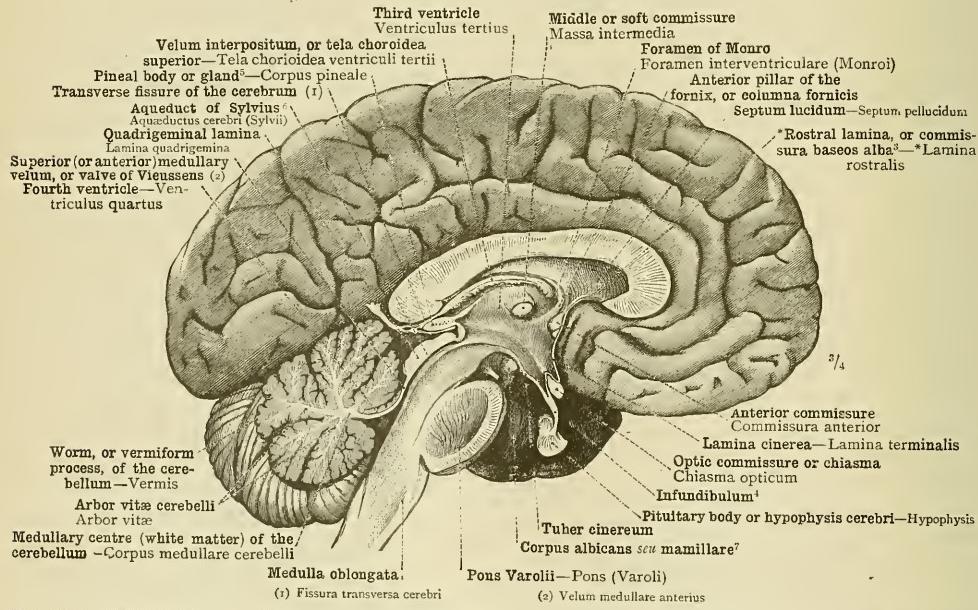


FIG. 1193.—MEDIAN SAGITTAL SECTION THROUGH THE BRAIN. THE INNER OR MESIAL SURFACE, FACIES MEDIALIS, OF THE LEFT CEREBRAL HEMISPHERE.

¹ See Appendix, note 386.

² See Appendix, note 361.

³ Or iter a tertio ad quartum ventriculum.

² Also called, from its relation to the fissure of Sylvius, the parallel fissure.

⁵ Also known as the conarium and as the epiphysis cerebri. See Appendix, note 365.

⁷ Also known as the bulb of the fornix.

³ See Appendix, note 387.

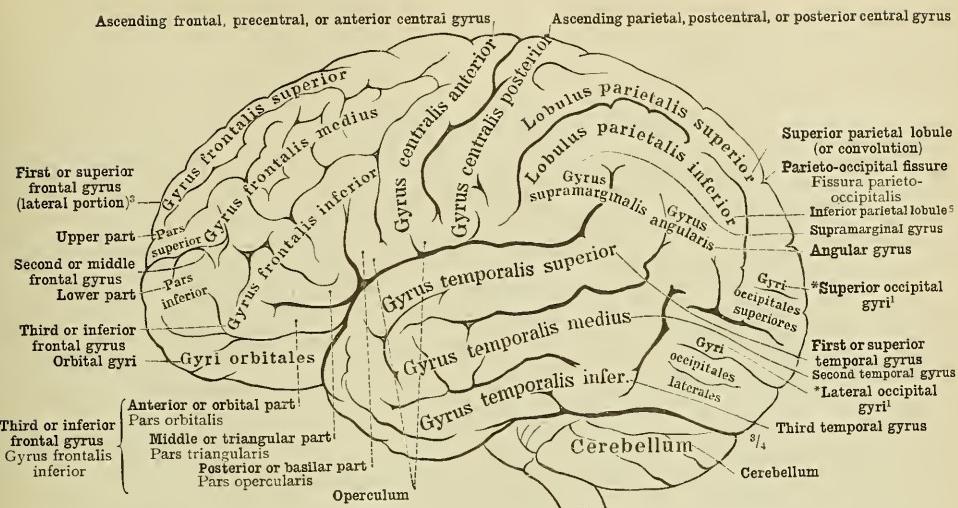


FIG. 1194.—THE LEFT HEMISPHERE, HEMISPHERIUM SINISTRUM, OF THE CEREBRUM; CONVEX OR OUTER SURFACE, FACIES CONVEXA, SEEN FROM THE SIDE. GYRI AND SULCI OF THE CEREBRUM.

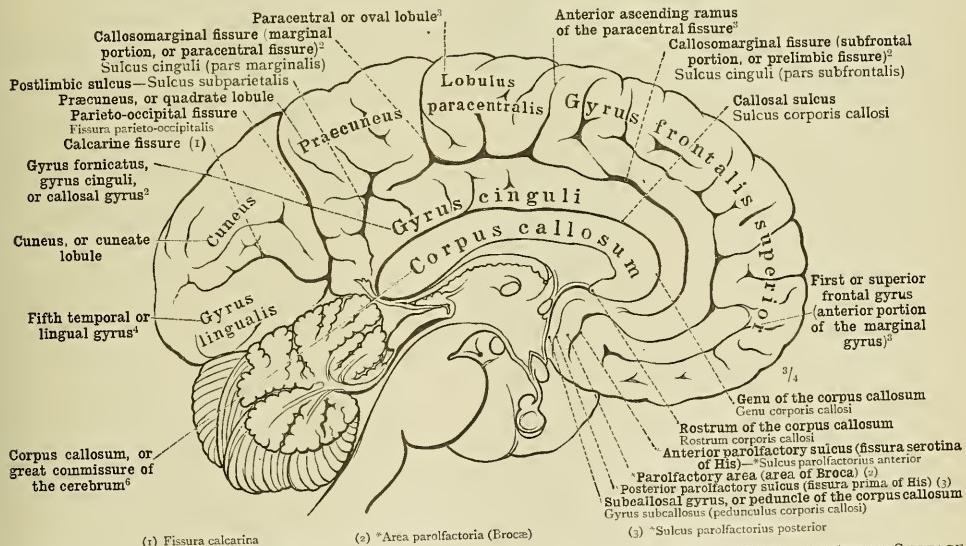


FIG. 1195.—MEDIAN SAGITTAL SECTION THROUGH THE BRAIN. GYRI AND SULCI OF THE INNER OR MESIAL SURFACE (FACIES MEDIALIS) OF THE LEFT CEREBRAL HEMISPHERE.

¹ See Appendix, note 395.

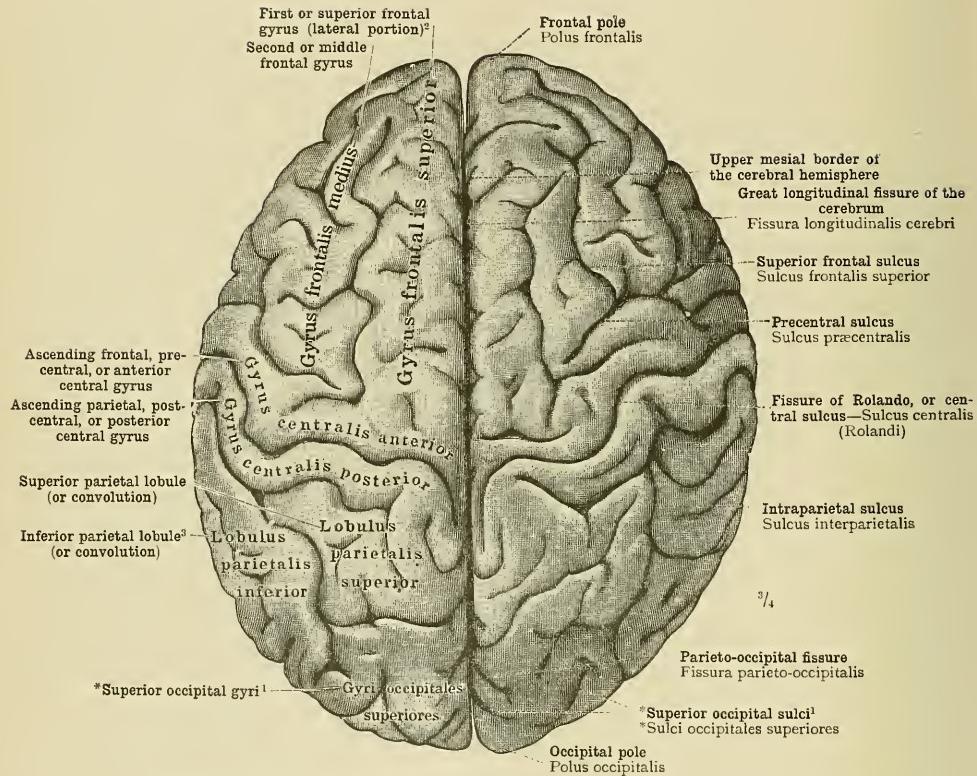
² See Appendix, note 399.

³ See Appendix, note 388.

⁴ See note 11 to p. 775.

⁵ Inferior Parietal Lobule.—Quain divides this into three gyri, the supramarginal, the angular, and the postparietal. The last named, which is not mentioned by Toldt, lies between the gyrus angularis and the gyrus occipitales superiores in Fig. 1194.

⁶ Formerly known as the *trœs cerebri*.



¹ See Appendix, note 386.

² See Appendix note 3²⁵.

3 See note 5 to p. 222.

FIG. 1196.—THE HEMISPHERES OF THE CEREBRUM, HEMISPHERIA CEREBRI; THEIR OUTER OR CONVEX SURFACE, FACIES CONVEXA, SEEN FROM ABOVE. GYRI AND SULCI OF THE CEREBRUM. DIPPING DEEPLY BETWEEN THE TWO HEMISPHERES IS THE GREAT LONGITUDINAL FISSURE OF THE CEREBRUM; ON EITHER SIDE OF THIS FISSURE IS THE UPPER MESIAL BORDER OF THE HEMISPHERE, WHICH SEPARATES THE OUTER OR CONVEX SURFACE OF THE HEMISPHERE FROM ITS INNER OR MESIAL SURFACE, AND EXTENDS FROM THE FRONTAL TO THE OCCIPITAL POLE.

The Cerebrum.

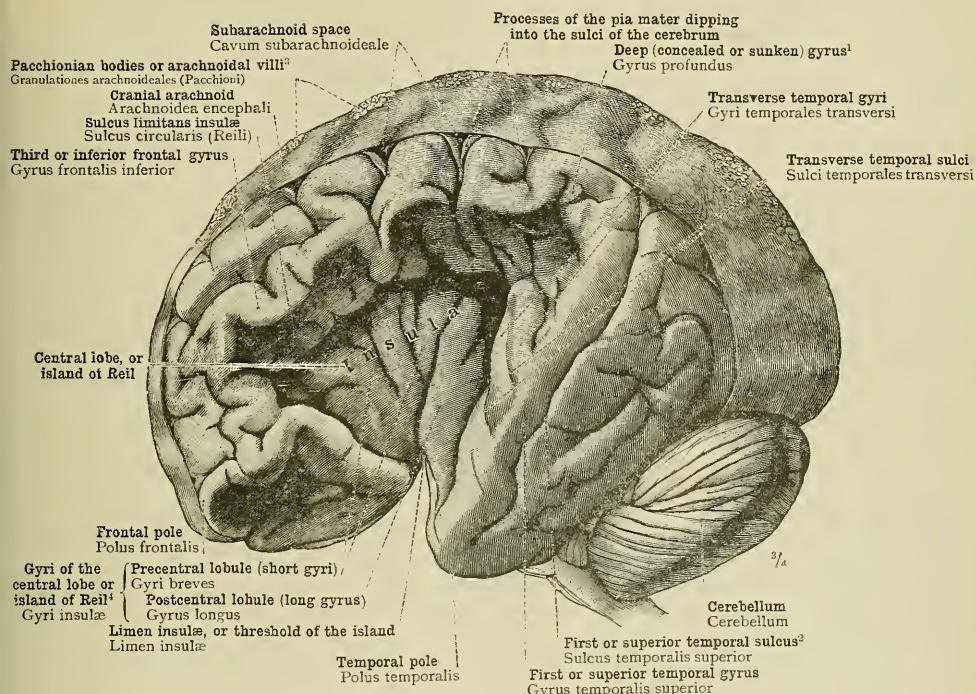


FIG. 1197.—THE OUTER OR CONVEX SURFACE, FACIES CONVEXA, OF THE LEFT CEREBRAL HEMISPHERE, SEEN FROM THE SIDE. THE TEMPORAL LOBE HAS BEEN DRAWN AWAY AS FAR AS POSSIBLE FROM THE FRONTAL AND PARIETAL LOBES, SO THAT THE SYLVIAN FISSURE IS WIDELY OPENED, AND IN THE DEPTH OF THIS FISSURE THE CENTRAL LOBE OR ISLAND OF REIL (INSULA) WITH ITS GYRI IS DISPLAYED, AND THE TRANSVERSE TEMPORAL SULCI AND GYRI ON THE UPPER SURFACE OF THE TEMPORAL LOBE ARE ALSO EXPOSED TO VIEW.

ON THE SURFACE OF THE UPPER PART OF THE HEMISPHERE THE PIA MATER AND THE ARACHNOID (PIA MATER ET ARACHNOIDEA ENCEPHALI) HAVE BEEN LEFT INTACT; BY DRAWING THE GYRI OF THIS PART OF THE BRAIN A LITTLE AWAY FROM ONE ANOTHER, THE LANIELLIFORM DUPLICATURES OF PIA MATER PASSING TO THE BOTTOM OF THE SULCI ARE DISPLAYED. THROUGH THE DURA MATER, ALONG THE LINE OF THE SUPERIOR LONGITUDINAL SINUS, THE PACCHIONIAN BODIES (GRANULATIONES ARACHNOIDEALES PACCHIONI) ARE VISIBLE.

¹ *Gyri Profundi.*—This name is given by the author to convolutions that do not appear on the surface of the brain, being hidden in depth of the sulci and fissures, and becoming visible only when these are widely opened. In England they are known most usually as *gyri profundis*.

² Also called, from its relation to the fissure of Sylvius, the *parallel fissure*.

³ Known also as *Pacchionian glands* or *Pacchionian granulations*.

⁴ The longest and deepest sulcus on the surface of the island of Reil, which separates the precentral lobule (*gyri breves*) from the postcentral lobule (*gyrus longus*), has been called the *sulcus centralis insulae*. It is well marked in Fig. 1197.

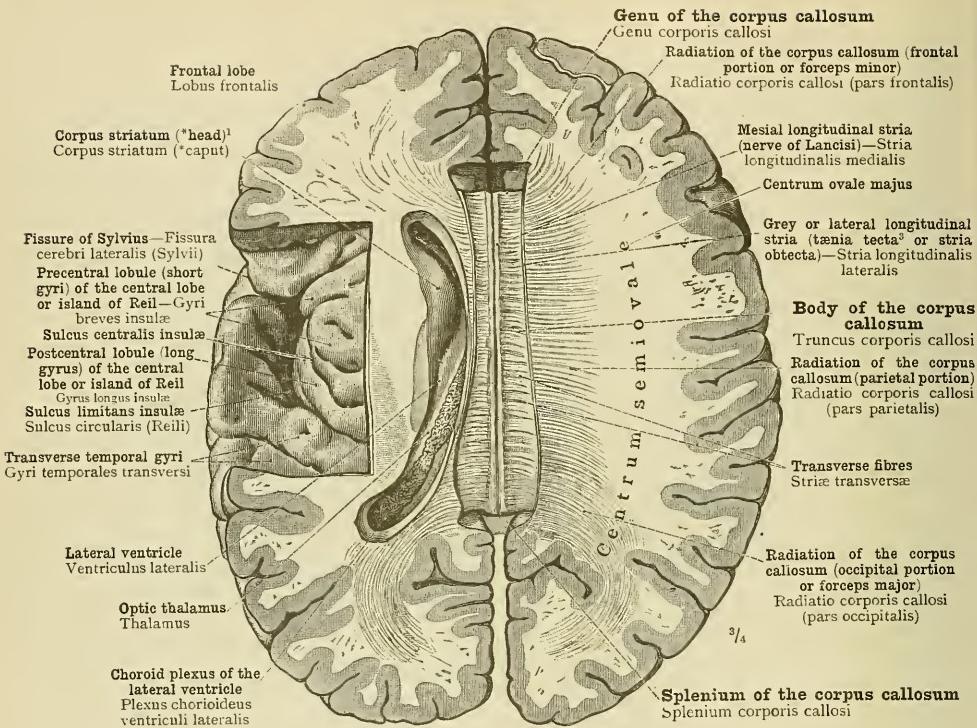


FIG. 1198.—THE UPPER PART OF BOTH CEREBRAL HEMISPHERES HAS BEEN REMOVED BY A SECTION IN THE PLANE OF THE DORSAL SURFACE OF THE CORPUS CALLOSUM OR GREAT COMMISSURE OF THE CEREBRUM (TRABS CEREBRI), SO THAT THE DORSUM OF THAT BODY IS FULLY EXPOSED, AND THE MEDULLARY CENTRE OR WHITE MATTER (MEDITULLIUM) OF THE CEREBRAL HEMISPHERES IS SEEN IN SECTION AS THE CENTRUM OVALE MAJUS (CENTRUM SEMIOVALE)².

IN THE RIGHT HEMISPHERE, THE SEVERAL PORTIONS OF THE RADIATION OF THE FIBRES OF THE CORPUS CALLOSUM (RADIATIO CORPORIS CALLOSOI) ARE INDICATED. IN THE LEFT HEMISPHERE, SEGMENTS HAVE BEEN REMOVED IN SUCH A MANNER AS ON THE ONE HAND TO EXPOSE FROM ABOVE THE CENTRAL LOBE OR ISLAND OF REIL (INSULA), AND ON THE OTHER TO OPEN THE LATERAL VENTRICLE, AND THUS TO DISPLAY THE *HEAD OF THE CORPUS STRIATUM (*i.e.*, THE HEAD OF THE CAUDATE OR INTRAVENTRICULAR NUCLEUS OF THE CORPUS STRIATUM—*see note*¹ *to p. 766*) WITH THE NEIGHBOURING PART OF THE OPTIC THALAMUS. THE MUTUAL RELATIONS OF THESE PARTS OF THE CEREBRUM ARE THUS MADE MANIFEST.

¹ See note ¹ to p. 766.

² *Centrum Semiovale*.—The central white matter seen in a horizontal section of one cerebral hemisphere at the level of the horizontal part of the callosomarginal fissure is known as the *centrum ovale minus*. If the upper part of both hemispheres be removed by a horizontal section in the plane of the dorsal surface of the corpus callosum, the white centres of the two hemispheres united by the upper surface of the corpus callosum make up the *centrum ovale majus*. The author is therefore strictly accurate in speaking of the white matter of a single hemisphere displayed by a section at this level as the *centrum semiovale*, but the latter term is not often used in England.

³ See Appendix, note ³.

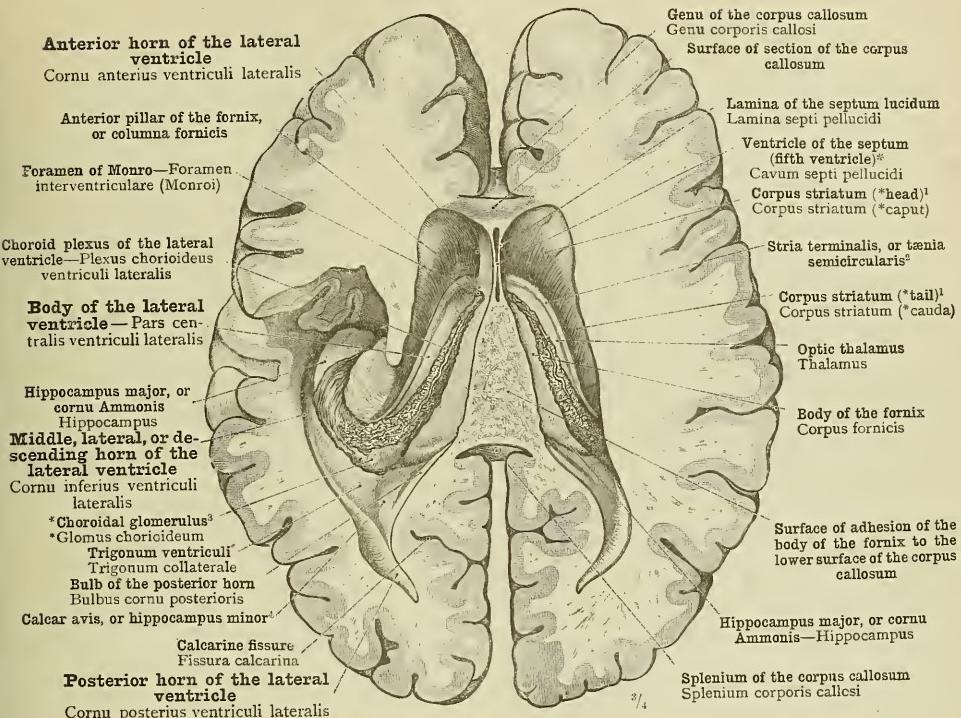
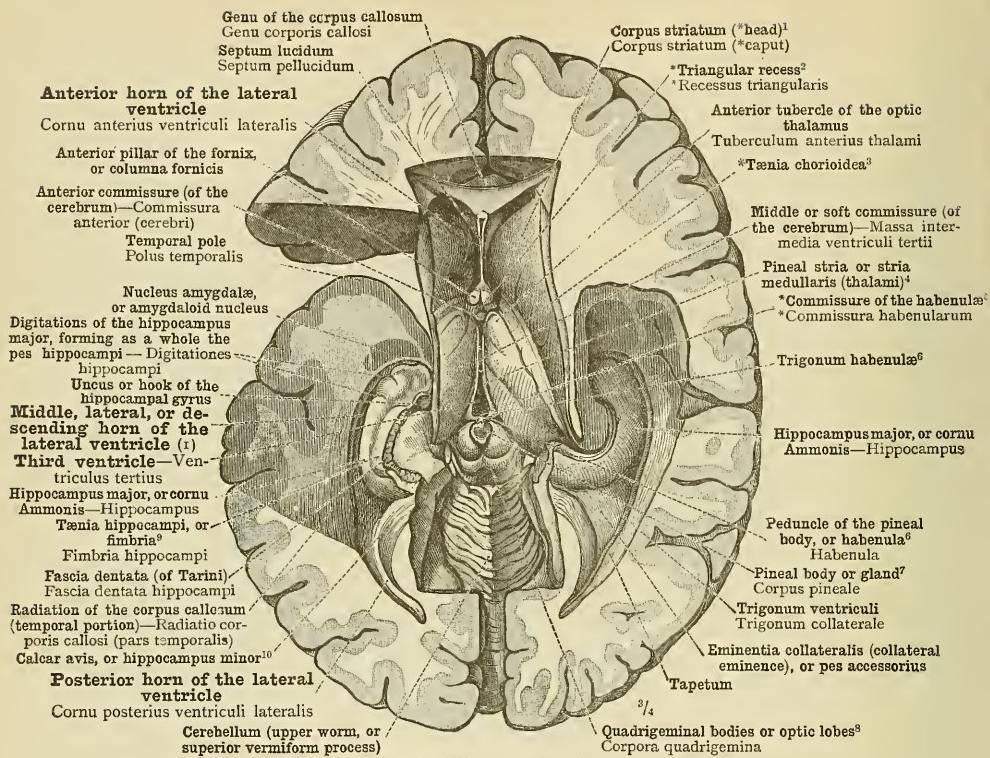


FIG. 1199.—THE UPPER PORTION OF THE CEREBRAL HEMISPHERES AND OF THE CORPUS CALLOSUM OR GREAT COMMISSURE OF THE CEREBRUM (TRABS CEREBRI) HAVING BEEN REMOVED, THE UPPER OR DORSAL SURFACE OF THE FORNIX WAS EXPOSED AND BOTH LATERAL VENTRICLES (VENTRICULI LATERALES) WERE OPENED. IN THE RIGHT HEMISPHERE, THE ANTERIOR HORN (CORNU ANTERIUS), POSTERIOR HORN (CORNU POSTERIUS), AND THE BODY (PARS CENTRALIS), ONLY, OF THE VENTRICLE ARE DISPLAYED; WHEREAS IN THE LEFT HEMISPHERE, BY THE REMOVAL OF A FURTHER PORTION OF THE BRAIN SUBSTANCE, THE MIDDLE, LATERAL, OR DESCENDING HORN (CORNU INFERIUS), DESCENDING INTO THE TEMPORAL LOBE, HAS ALSO BEEN OPENED. THE SEPTUM BETWEEN THE TWO ANTERIOR HORNS, KNOWN AS THE SEPTUM LUCIDUM (SEPTUM PELLUCIDUM), IS SEEN IN HORIZONTAL SECTION; ITS RIGHT AND LEFT LATERAL LAMINÆ (LAMINÆ SEPTI PELLUCIDI) ARE SEPARATED ONE FROM ANOTHER BY A MEDIAN CAVITY KNOWN AS THE VENTRICLE OF THE SEPTUM OR FIFTH VENTRICLE (CAVUM SEPTI PELLUCIDI).

¹ See note 1 to p. 766.

² See Appendix, note 292.
3 *Choroidal Glomerulus*.—“The thickened margin of the velum interpositum projects freely on either side into the body of the lateral ventricle, forming the choroid plexus of that cavity, which extends along the posterior pillar of the fornix (crus fornici) into the descending horn of the lateral ventricle; just before it enters the descending horn, the choroid plexus exhibits a considerable enlargement, the *glomus chorioideum*” (Von Langer and Toldt, *op. cit.*, p. 605). This structure is described neither by Quain nor by Macalister.

4 Or *ergot* (Morand).



(1) Corma inferius ventriculi lateralis.

FIG. 1200.—THE UPPER PART OF THE CEREBRAL HEMISPHERES, THE CORPUS CALLOSUM OR GREAT COMMISSURE (TRABS CEREBRI), THE FORNIX, AND THE VELUM INTERPOSITUM HAVING BEEN REMOVED, THE LATERAL VENTRICLES AND THE THIRD VENTRICLE WERE FULLY OPENED FROM ABOVE; AND THE QUADRIGEMINAL BODIES OR OPTIC LOBES (CORPORA QUADRIGEMINA—see note⁶ to p. 760), THE PINEAL BODY OR GLAND (CORPUS PINEALE—see note⁷ below), AND ALSO THE UPPER WORM OR SUPERIOR VERMIFORM PROCESS (VERMIS SUPERIOR) OF THE CEREBELLUM, WERE EXPOSED TO VIEW.

FORMING THE OUTER WALL OF THE ANTERIOR HORN OF THE LATERAL VENTRICLE IS THE HEAD OF THE CAUDATE NUCLEUS (*CAPUT CORPORIS STRIATI—see note¹ to p. 766); FORMING THE ANTERIOR WALL OF THE SAME IS THE GENU OF THE CORPUS CALLOSUM (GENU CORPORIS CALLOSI); AND FORMING THE INNER WALL OF THE SAME IS THE SEPTUM LUCIDUM (SEPTUM PELLUCIDUM), WHICH STRETCHES FORWARD FROM THE ANTERIOR PILLAR OF THE FORNIX (COLUMNNA FORNICIS) TO THE GENU OF THE CORPUS CALLOSUM. IN THE FLOOR OF THE BODY (PARS CENTRALIS) OF THE LATERAL VENTRICLE IS SEEN THE UPPER OR DORSAL SURFACE OF THE OPTIC THALAMUS, THE STRIA TERMINALIS OR TÉNIA SEMICIRCULARIS (see Appendix, note³⁹²), AND THE TAIL OF THE CAUDATE NUCLEUS (*CAUDA CORPORIS STRIATI—see note¹ to p. 766). IN THE INNER WALL OF THE POSTERIOR HORN IS THE CALCAR AVIS OR HIPPOCAMPUS MINOR; WHILST IN THE LOWER WALL OF THE MIDDLE, LATERAL, OR DESCENDING HORN PROJECTS THE CONVEXITY OF THE HIPPOCAMPUS MAJOR, OR CORNU AMMONIS. IN THE LEFT HEMISPHERE, THE POSTERIOR PORTION OF THE FRONTAL LOBE HAS BEEN COMPLETELY REMOVED BY A FRONTAL SECTION; AND, MOREOVER, BY A SECTION IN THE DIRECTION OF THE LONG AXIS OF THE TEMPORAL LOBE, THE UPPER PORTION OF THIS LOBE HAS BEEN CUT AWAY, SO THAT THE NUCLEUS AMYGDALÆ OR AMYGDALOID NUCLEUS, SITUATE NEAR THE ANTERIOR EXTREMITY OF THE TEMPORAL LOBE, IS SEEN IN SECTION.

¹ See note¹ to p. 766.² See Appendix, note³⁹².
3 This name is given by the author to the line of attachment of the outer layer of the choroid plexus of the lateral ventricle, adjacent to the stria terminalis or ténia semicircularis. See Appendix, note³⁹².⁴ Also called ténia fornici. See Appendix, notes³⁹³ and³⁹⁴.⁵ Middle of the upper or dorsal portion of the pedunculus canarii or habenula (Quain), or transverse frenulum of the pineal body (Macalister). See Appendix, note³⁶⁵.⁶ See Appendix, note³⁶⁵.⁷ Known also as the conarium, and as the epiphysis cerebri. See Appendix, note³⁶⁵.⁹ Called by Macalister corpus timbratum. See Appendix, note³⁹².⁸ See note⁵ to p. 760.¹⁰ Or ergot (Morand).

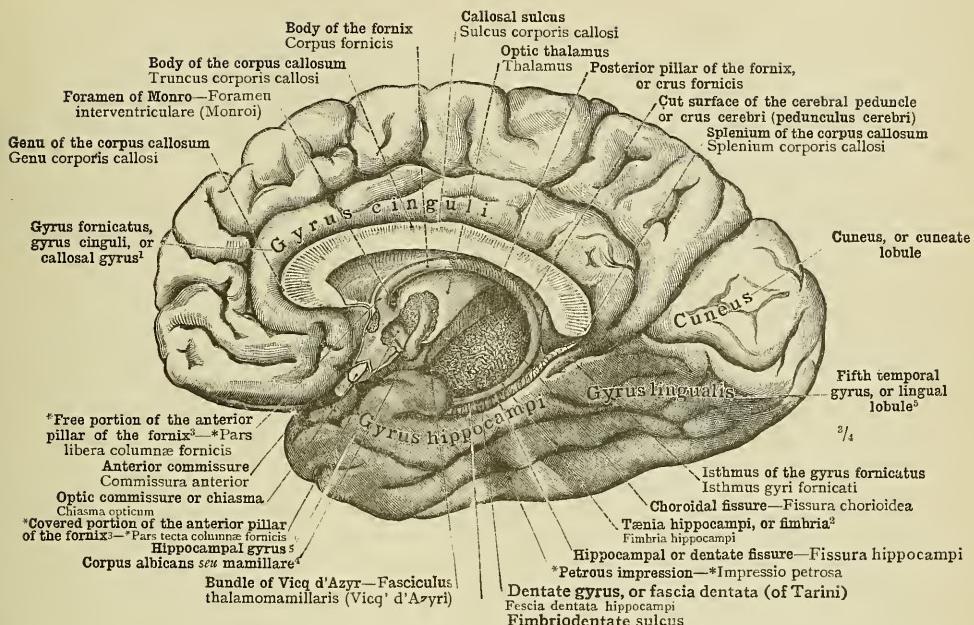


FIG. 1201.—THE INNER OR MESIAL SURFACE, FACIES MEDIALIS, OF THE RIGHT CEREBRAL HEMISPHERE. THE CEREBRAL PEDUNCLE OR CRUS CEREBRI HAS BEEN DIVIDED TRANSVERSELY AS IT ENTERS THE HEMISPHERE. THE *GYRUS FORNICATUS (GRAND LOBE LIMIQUE OF BROCA—see Appendix, note ³⁹⁰), CONSISTING OF THE GYRUS CINGULI OR CALLOSAL GYRUS (USUALLY ITSELF CALLED GYRUS FORNICATUS IN ENGLAND) AND THE GYRUS HIPPOCAMPNI OR HIPPOCAMPAL GYRUS, THE TWO BEING CONNECTED BENEATH THE SPLENIUM OF THE CORPUS CALLOSUM BY THE ISTMUS OF THE GYRUS FORNICATUS. THE GYRUS CINGULI OR CALLOSAL GYRUS SURROUNDS THE THREE PARTS OF THE CORPUS CALLOSUM OR GREAT COMMISSURE (TRÆS CERERI) WHICH IS SEEN IN MEDIAN SAGITTAL SECTION: THESE THREE PARTS ARE THE GENU, THE BODY (TRUNCUS), AND THE SPLENIUM. THE FORNIX IS SEEN IN ITS WHOLE LENGTH, THE LOWEST, *COVERED PORTION OF THE ANTERIOR PILLAR (*PARS TECTA COLUMNÆ FORNICIS—see Appendix, note ³⁹¹) HAVING BEEN EXPOSED BY THE PARTIAL REMOVAL OF THE LATERAL WALL OF THE THIRD VENTRICLE. BENEATH THE SPLENIUM OF THE CORPUS CALLOSUM, THE CONTINUITY OF THE POSTERIOR PILLAR OF THE FORNIX (CRUS FORNICIS) WITH THE TÆNIA HIPPOCAMPNI OR FIMBRIA (FIMBRIA HIPPOCAMPNI—see note ² below) IS MANIFEST. PARALLEL WITH THE FIMBRIA, BENEATH IT, AND SEPARATED FROM IT BY A SHALLOW GROOVE, THE FIMERODENTATE SULCUS, RUNS THE DENTATE GYRUS OR FASCIA DENTATA (OF TARINI). BEHIND THE *COVERED PORTION OF THE ANTERIOR PILLAR OF THE FORNIX THE BUNDLE OF VICQ D'AZYR, WHICH CONNECTS THE CORPUS ALBICANS SEU MAMILLARE (OR BULB OF THE FORNIX) WITH THE OPTIC THALAMUS, HAS ALSO BEEN EXPOSED.

¹ See Appendix, note ³⁹⁰.

² See Appendix, note ³⁹¹.

³ See Appendix, note ³⁹².
⁴ Also known as the *bulb of the fornix*.
⁵ The *fifth temporal gyrus* or *lingual lobule* and the *hippocampal gyrus* together make up the *uncinate gyrus*. The former is also known as the *subcircular* or *infracircular gyrus*, and the latter as the *sabellulum cornu Ammonis*. See also Appendix, note ³⁹³.

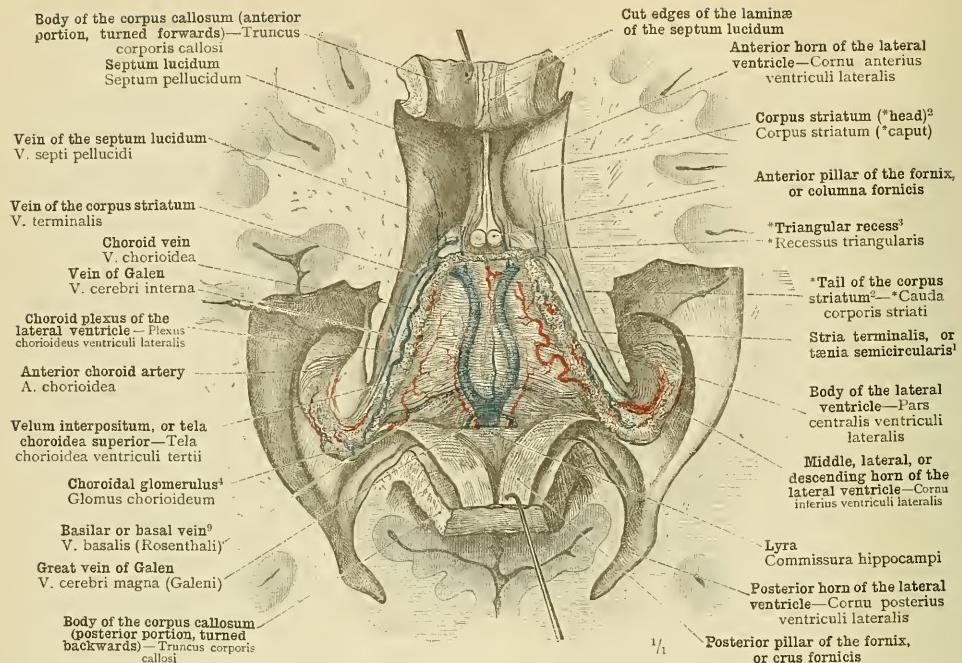


FIG. 1202.—THE VELUM INTERPOSITUM OR TELA CHORIOIDEA SUPERIOR (TELÆ CHORIOIDEA VENTRICULI TERTII), WITH THE CHOROID PLEXUSES OF THE LATERAL VENTRICES (PLEXUS CHOROIDEI VENTRICULORUM LATERALIUM), LAID BARE FROM ABOVE. THE LARGER BLOODVESSELS OF THE VELUM INTERPOSITUM AND THE CHOROID PLEXUSES HAVE BEEN RENDERED MORE CONSPICUOUS BY INJECTION

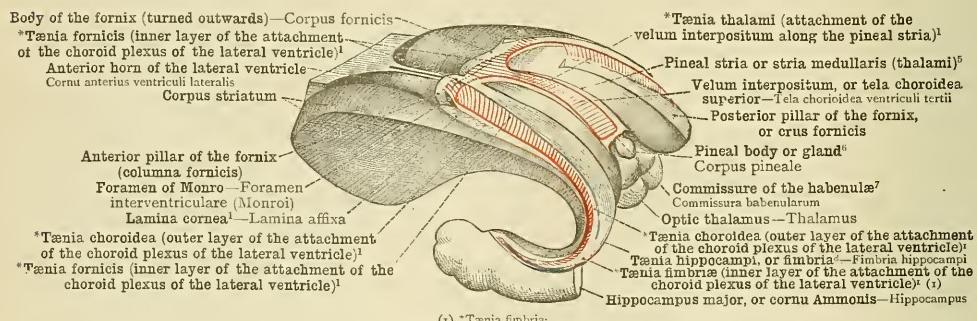


FIG. 1203.—THE LINES OF ATTACHMENT OF THE VELUM INTERPOSITUM AND THE CHOROID PLEXUSES OF THE LATERAL VENTRICES (Tænia Telarum¹) IN THE PROSENCEPHALON AND THALAMENCEPHALON. DIAGRAMMATIC. THE RIGHT POSTERIOR PILLAR OF THE FORNIX HAS BEEN CUT THROUGH WITH THE VELUM INTERPOSITUM, AND ITS ANTERIOR PORTION HAS BEEN TURNED OUTWARDS. ON THE LEFT SIDE, ALSO, THE ANTERIOR PORTION OF THE FORNIX HAS BEEN DRAWN A LITTLE UPWARDS. SEEN OBLIQUELY FROM ABOVE AND THE LEFT SIDE.

¹ See Appendix, note 392.

² See note 1 to p. 766.

³ See Appendix, note 392.

⁴ See note 3 to p. 781.

⁵ Often known in England as the *tænia jorrigis*. See Appendix, notes 391, 395, and 397.

⁶ Known also as the *comarinx* and as the *epiphysis cerebri*. See Appendix, note 395.

⁷ Called by Macalister the *transverse frenulum of the pineal body*. See Appendix, note 395.

⁸ Called by Macalister the *corpus fimbriatum*. See also Appendix, note 392.

⁹ See Appendix to Part V., note 297.

Gyrus *fornicatus*, gyrus *cinguli*,
or callosal gyrus¹—Gyrus *cinguli*:
Great longitudinal fissure of the
cerebrum—Fissura longitudinalis cerebri
Callosal sulcus
Sulcus corporis callosi
Body of the corpus callosum
Truncus corporis callosi
Ependyma of the ventricle
Ependyma ventriculi

Tail of the caudate
nucleus²
Cauda nuclei caudati

Stria terminalis, or tænia
semicircularis³

Vein of the corpus striatum

Vena terminalis

Anterior nucleus of the optic
thalamus⁴

Nucleus anterior thalami

Stratum zonale of the optic
thalamus

Stratum zonale thalami

Internal medullary lamina

Lamina medullaris

Optic thalamus—Thalamus.

Bundle of Vieq d'Azry

Fasciculus thalami-mamillaris

(Vicus d'Azry)

Subthalamic tegmental region

Hypothalamus⁵

Middle or soft commissure (of the cerebrum)

Massa intermedia ventriculi tertii

Nuclei of the corpus albicans seu mammilla

Nuclei corporis mamillaris

Body of the fornix—Corpus *fornicis*
*Tænia *fornicis* (inner layer of the
attachment of the choroid plexus of
the lateral ventricle)⁶
Body of the lateral ventricle
Parts centralis ventriculi lateralis
Choroid plexus of the lateral
ventricle—Planum chorioideum
ventriculi lateralis
Epithelial layer of the velum
interpositum and choroid
plexuses⁷—Lamina chorioideum
epithelialis
Lamina affixa⁸
Lamina affixa

*Tænia *choroidea* (outer
layer of the attachment
of the choroid plexus of
the lateral ventricle)⁹

Velum interpositum, or tela
chorioidea superior

Tela chorioidea subtantill terii

Tænia thalami (attachment of
the velum interpositum along
the pineal stria)¹⁰

Pineal stria, or stria
medullaris (thalami)¹¹

Choroid plexus of the third
ventricle—Plexus chorioideus
ventriculi tertii

Third ventricle—Ventriculus tertius

Corpus subthalamicum, or nucleus of
Luys—Nucleus hypothalamicus (corpus Luysi)

Nucleus of the tegmentum, or red nucleus

Nucleus ruber

Crusta

Basis pedunculi

FIG. 1204.—CORONAL SECTION THROUGH THE MIDDLE OF THE THIRD VENTRICLE AND THE ADJOINING PARTS OF THE ENCEPHALON. THE VELUM INTERPOSITUM OR TELA CHORIOIDEA SUPERIOR AND THE CHOROID PLEXUSES OF THE THIRD AND LATERAL VENTRICLES ARE SEEN IN TRANSVERSE SECTION. THE ATTACHMENT OF THE CHOROID PLEXUS OF THE LATERAL VENTRICLE TO THE OUTER FREE BORDER OF THE FORNIX BY MEANS OF THE *TÆNIA FORNICIS¹; TO THE LAMINA CORNEA (LAMINA AFFIXA) AND THE EPENDYMA OF THE LATERAL VENTRICLE BY MEANS OF THE *TÆNIA CHOROIDEA (see Appendix, note 392); AND, FINALLY, THE ATTACHMENT OF THE LOWER SURFACE OF THE VELUM INTERPOSITUM TO THE PINEAL STRIA (STRIA MEDULLARIS THALAMI) BY MEANS OF THE TÆNIA THALAMI.¹

Choroid plexus of the lateral ven-
tricle—Plexus chorioideus ventriculi lateralis

*Tænia choroidea (outer layer of
the attachment of the choroid
plexus of the lateral ventricle)²

*Tænia fimbria (inner layer of
the attachment of the choroid
plexus of the lateral ventricle)³

Choroidal fissure⁴

Fissura chorioidea

External geniculate body⁵

Corpus geniculatum laterale

Tænia hippocampi, or fimbria⁶

Fimbria hippocampi

Limbrodenteate sulcus⁷

Dentate gyrus, or fascia
dentata (of Tarini) (1)

Reservoir of subarachnoid fluid (2)

Hippocampal or dentate fissure

Hippocampal gyrus, or subiculum
cornu Ammonis (covered
by the pia mater)—Gyrus
hippocampi

Reticulated white substance
(of Arnold)—Substantia
reticularis alba (Arnoldi)

Cranial arachnoid

Arachnoidea encephali

Cranial arachnoid—Arachnoidea encephali

(1) Fascia dentata hippocampi

Tail of the caudate nucleus⁸
Cauda nuclei caudati

Epithelial layer of the choroid
plexus⁹—Lamina chorioidea
epithelialis

Hippocampus major, or
cornu Ammonis

Hippocampus

Ependyma of the ventricle

Ependyma ventriculi

Middle, lateral, or descending
horn of the lateral ven-
tricle—Cornu inferius

ventriculi lateralis

Collateral eminence, or pes
accessorius

Eminentia collateralis

Alveus

White matter

Substantia alba

Grey matter (cortex)

Substantia corticalis

Outer line of Bailliger,
or line of Vieq d'Azry

Process of the pia mater

Collateral fissure¹²—Fissura collateralis

Suharachnoid space—Cavum subarachnoideale

(2) Cisterna subarachnoidealis

FIG. 1205.—CORONAL SECTION THROUGH THE MIDDLE, LATERAL, OR DESCENDING HORN OF THE RIGHT LATERAL VENTRICLE AND THE HIPPOCAMPAL GYRUS OR SUBICULUM CORNU AMMONIS. THE CHOROID PLEXUS IS SEEN IN TRANSVERSE SECTION. IT IS CONNECTED WITH THE EPENDYMA OF THE DESCENDING HORN BY MEANS OF THE *TÆNIA CHOROIDEA, AND WITH THE MARGIN OF THE TÆNIA HIPPOCAMPI OR FIMERIA (FIMBRIA HIPPOCAMPI OR CORPUS FIMERIUM) BY MEANS OF THE *TÆNIA FIMBRIA (see Appendix, note 392).

¹ See Appendix, note 392. The *tænia fornicis* of Toldt must not be confused with the *tænia fornicis* of English authors, the latter being also known as the *pineal stria*. See Appendix, notes 359 and 365.

² Or epithelium of the plexuses (Quain). See Appendix, note 374.

³ See note 1, to p. 766.

⁴ Also known as the *nucleus of the anterior tubercle of the optic thalamus*.

⁵ Sometimes regarded as the *fourth temporal sulcus*.

⁶ Called by Macalister the *corpus fimbriatum*. See Appendix, note 392.

⁷ See Appendix, note 392.

⁸ See Appendix, note 390.

⁹ Or lateral geniculate body.

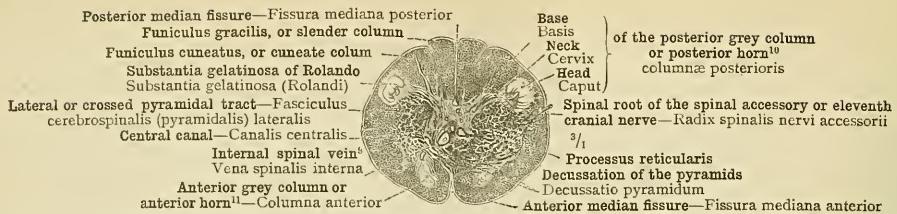


FIG. 1206.—TRANSVERSE SECTION THROUGH THE PYRAMIDAL DECUSSATION. LOWER OR CLOSED PART OF THE MEDULLA OBLONGATA.

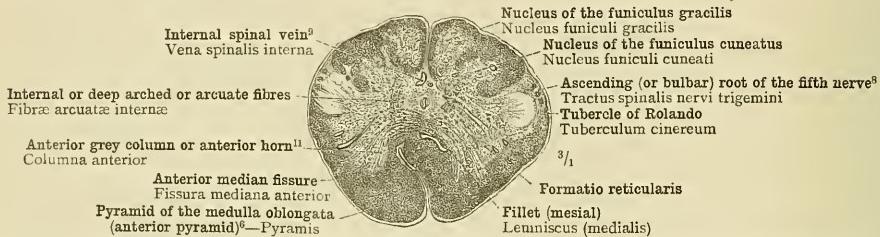


FIG. 1207.—TRANSVERSE SECTION THROUGH THE PYRAMIDS BELOW THE OLIVES. LOWER OR CLOSED PORTION OF THE MEDULLA OBLONGATA.

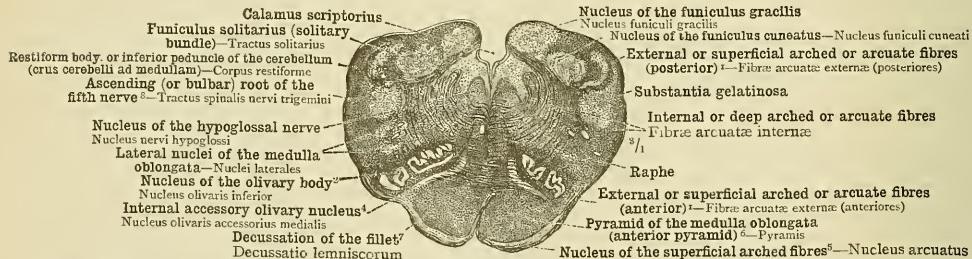


FIG. 1208.—TRANSVERSE SECTION THROUGH THE LOWER EXTREMITY OF THE OLIVARY BODY OR LOWER OLIVE. LOWER PART OF THE FLOOR OF THE FOURTH VENTRICLE (PARS INFERIOR FOSSE RHOMBOIDEÆ—see Appendix, note 353).

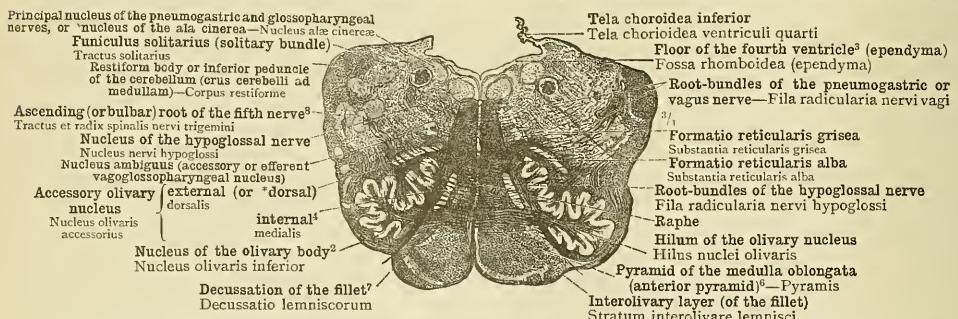


FIG. 1209.—TRANSVERSE SECTION THROUGH THE MIDDLE OF THE OLIVARY BODY OR LOWER OLIVE. LOWER PART OF THE FLOOR OF THE FOURTH VENTRICLE (PARS INFERIOR FOSSE RHOMBOIDEÆ—see Appendix, note 353).

TRANSVERSE SECTIONS THROUGH THE MEDULLA OBLONGATA. (THE WHITE MATTER IS SHADED, THE GREY MATTER UNSHADED.)

¹ See Appendix, note 353.

² Or (*inferior*) olfactory nucleus; also known as the *corpus dentatum of the olive*. See Appendix, note 354.

³ See Appendix, note 355.

⁴ By Macalister called *internal parvovascular nucleus*.

⁵ Called by Gowers the *lower root*.

¹⁰ Or basis cornu posterioris, cervix cornu posterioris, and caput cornu posterioris. Regarding the use of the term *posterior grey column*, see Appendix, note 359.

¹¹ See Appendix, note 359.

⁶ See Appendix, note 353.

⁷ See Appendix, note 354.

⁸ See Appendix to Part V., note 358.

⁹ See Appendix, note 355.

¹⁰ Transverse Sections through the Brain.

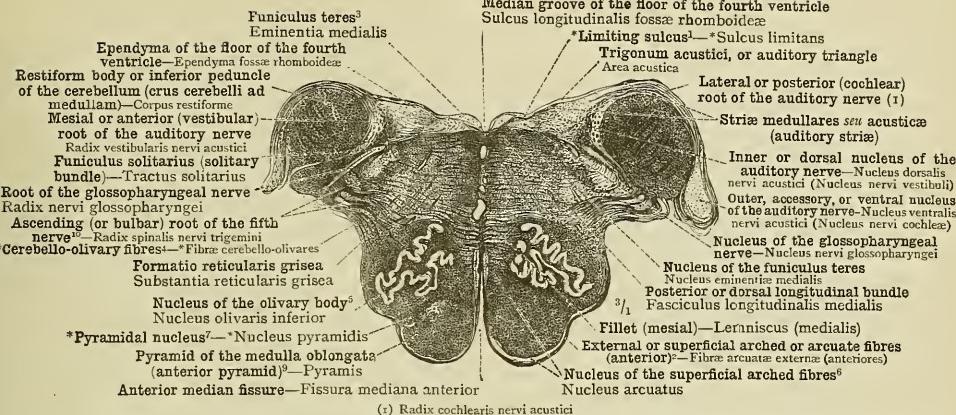


FIG. 1210.—TRANSVERSE SECTION THROUGH THE MEDULLA OBLONGATA, AT THE LEVEL OF THE UPPER EXTREMITY OF THE OLIVARY BODY OR LOWER OLIVE, TRaversing the Trigonum acustici or auditory triangle. Middle or intermediate portion of the floor of the fourth ventricle (pars intermedia fossæ rhomboideæ—see Appendix, note 355).

The white matter is shaded, the grey matter unshaded.

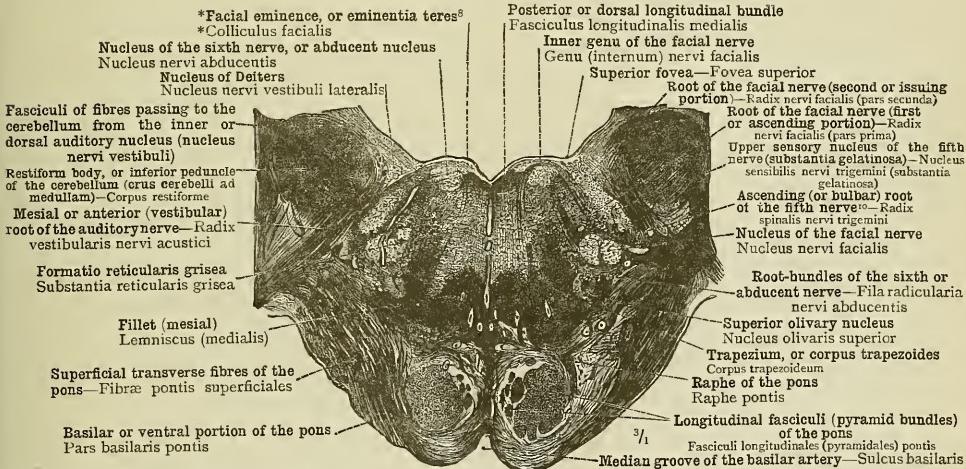


FIG. 1211.—TRANSVERSE SECTION THROUGH THE LOWER BORDER OF THE PONS VAROLII AND THE *EMINENCE OR EMINENTIA TERES (*COLLICULUS FACIALIS—see Appendix, note 376). MIDDLE OR INTERMEDIATE PORTION OF THE FLOOR OF THE FOURTH VENTRICLE (PARS INTERMEDIA FOSSÆ RHOMBOIDEÆ—see Appendix, note 355).

The white matter is shaded, the grey matter unshaded.

¹ See Appendix, note 377.

² See Appendix, note 393.

³ See Appendix, note 375.

⁴ See Appendix, note 395.

⁵ Or (*inferior*) olivary nucleus; also known as the *corpus dentatum of the olive*.

See Appendix, note 385.

See Appendix, note 395.

⁶ By Macalister called *nucleus ariformis*.

⁷ See Appendix, note 395.

⁸ See Appendix, note 376.

¹⁰ Called by Gowers the *lower root*.

Transverse Sections through the Brain.

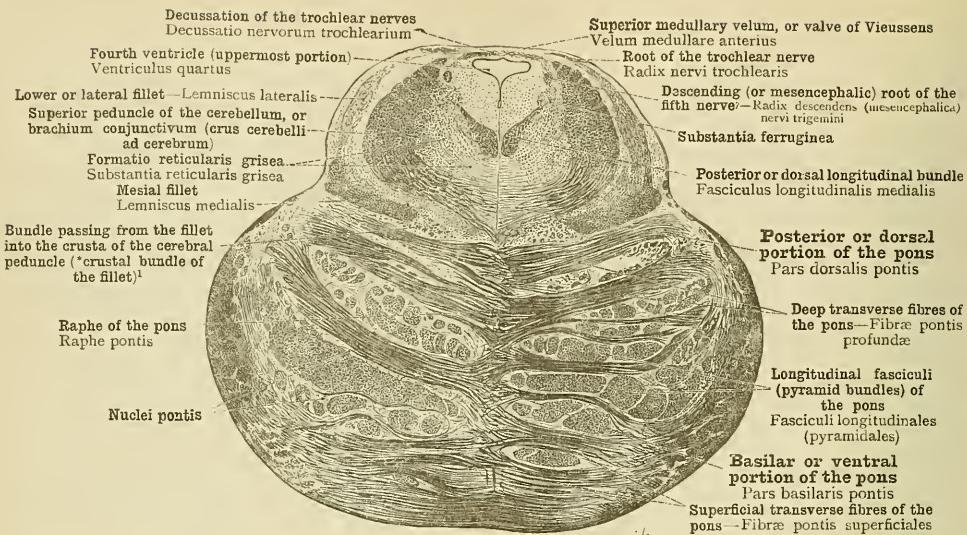


FIG. 1212.—TRANSVERSE SECTION THROUGH THE MIDDLE OF THE PONS VAROLII AND THE SUPERIOR MEDULLARY VELUM, OR VALVE OF VIEUSSENS. *ISTHMUS RHOMBEENCEPHALI (see Appendix, note 369); UPPER PORTION OF THE FLOOR OF THE FOURTH VENTRICLE (PARS SUPERIOR FOSSÆ RHOMBOIDEÆ—see Appendix, note 355).

White matter shaded, grey matter unshaded.

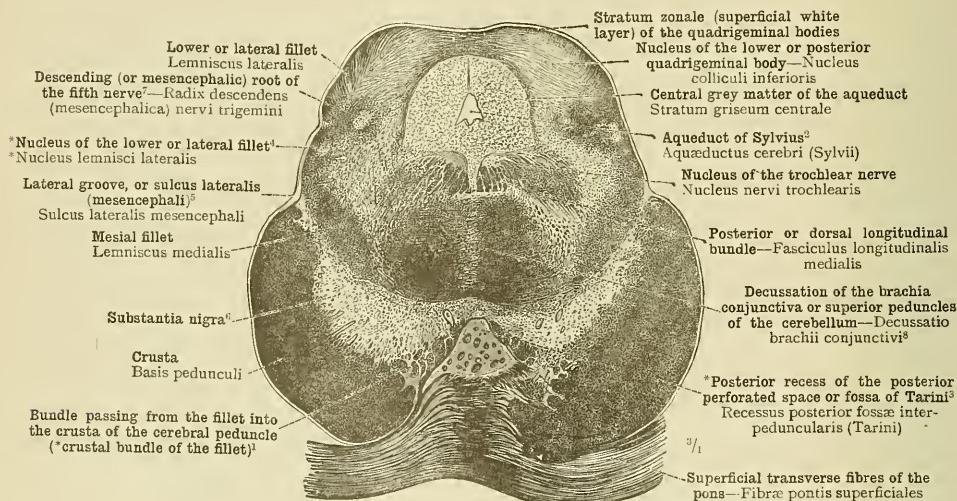


FIG. 1213.—TRANSVERSE SECTION THROUGH THE UPPER BORDER OF THE PONS VAROLII, PASSING THROUGH THE HINDMOST PORTION OF THE CRURA CEREBRI OR CEREBRAL PEDUNCLES AND THE LOWER OR POSTERIOR CORPORA QUADRIGEMINA. MID-BRAIN OR MESENCEPHALON.

White matter shaded, grey matter unshaded.

¹ See Appendix, note 393.

² See Appendix, note 393.

³ Or iter a tertio ad quartum ventriculum.

⁴ See Appendix, note 399.

⁵ Called by Gowers the upper root.

⁶ See Appendix, note 392.

⁷ Called by Macalister the locus niger

⁸ See note 11 to p. 772.

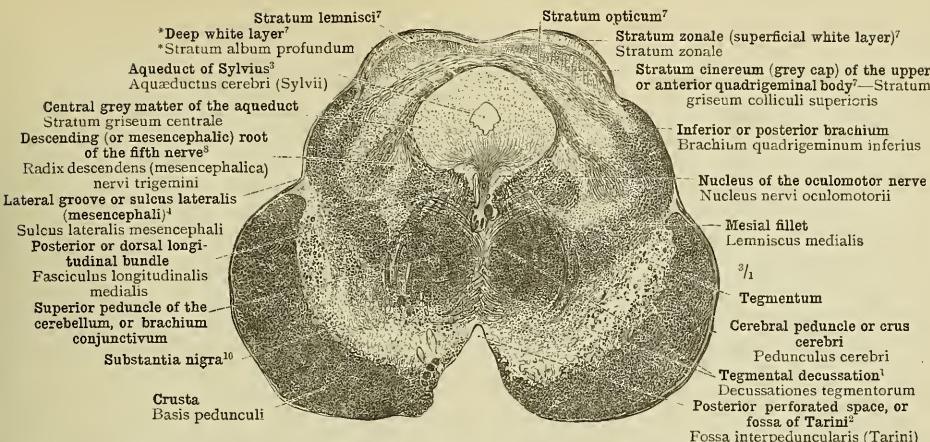


FIG. 1214.—TRANSVERSE SECTION THROUGH THE MIDDLE OF THE CEREBRAL PEDUNCLE OR CRUS CEREBRI, THROUGH THE TEGMENTUM, AND THROUGH THE UPPER OR ANTERIOR QUADRIGEMINAL BODIES. MID-BRAIN OR MESENCEPHALON.

White matter shaded, grey matter unshaded.

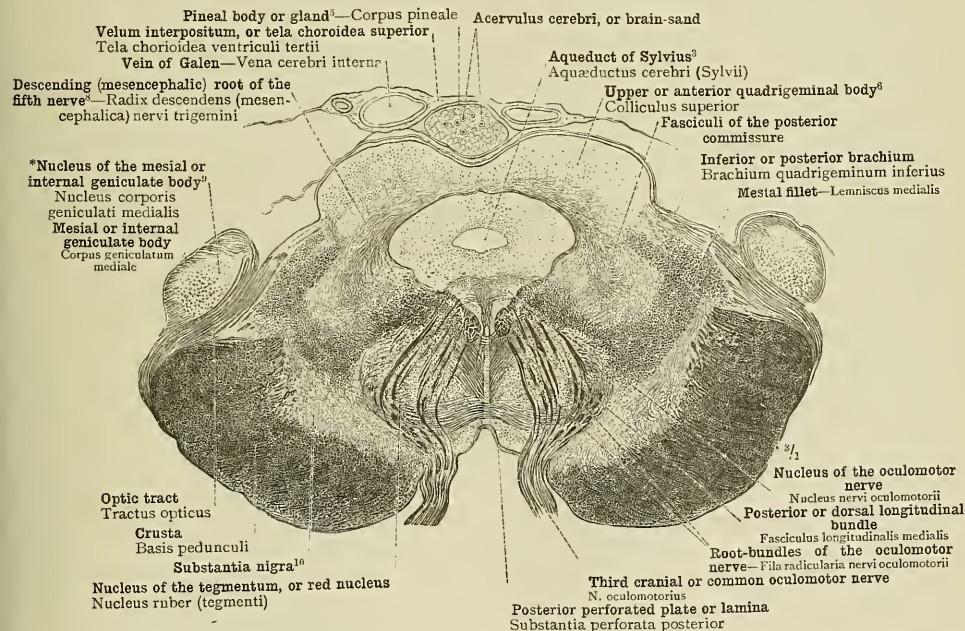


FIG. 1215.—TRANSVERSE SECTION THROUGH THE FRONT OF THE CEREBRAL PEDUNCLE OR CRUS CEREBRI, THROUGH THE NUCLEUS OF THE TEGMENTUM OR RED NUCLEUS, THROUGH THE UPPER OR ANTERIOR QUADRIGEMINAL BODIES AND THE PINEAL BODY OR GLAND (see note ⁵ below). MID-BRAIN OR MESENCEPHALON, ADJACENT TO THE INTERBRAIN OR THALAMENCEPHALON.

White matter shaded, grey matter unshaded.

¹ See Appendix, note 999.

² See Appendix, note 362.

³ See Appendix, note 372.

⁴ See Appendix, note 372.

⁵ Nuclei of the Geniculate Bodies. The name is not used by Quain.

⁶ Known also as the covarum and as the epiphysis cerebri. See Appendix, note 365.

⁷ See Appendix, note 400.

⁸ Called by Gowers the upper root.

⁹ Called by Macalister the locus niger.

¹⁰ Called by Toldt the nuclei of these bodies.

¹¹ Called by Gowers the lower root.

¹² Called by Macalister the locus niger.

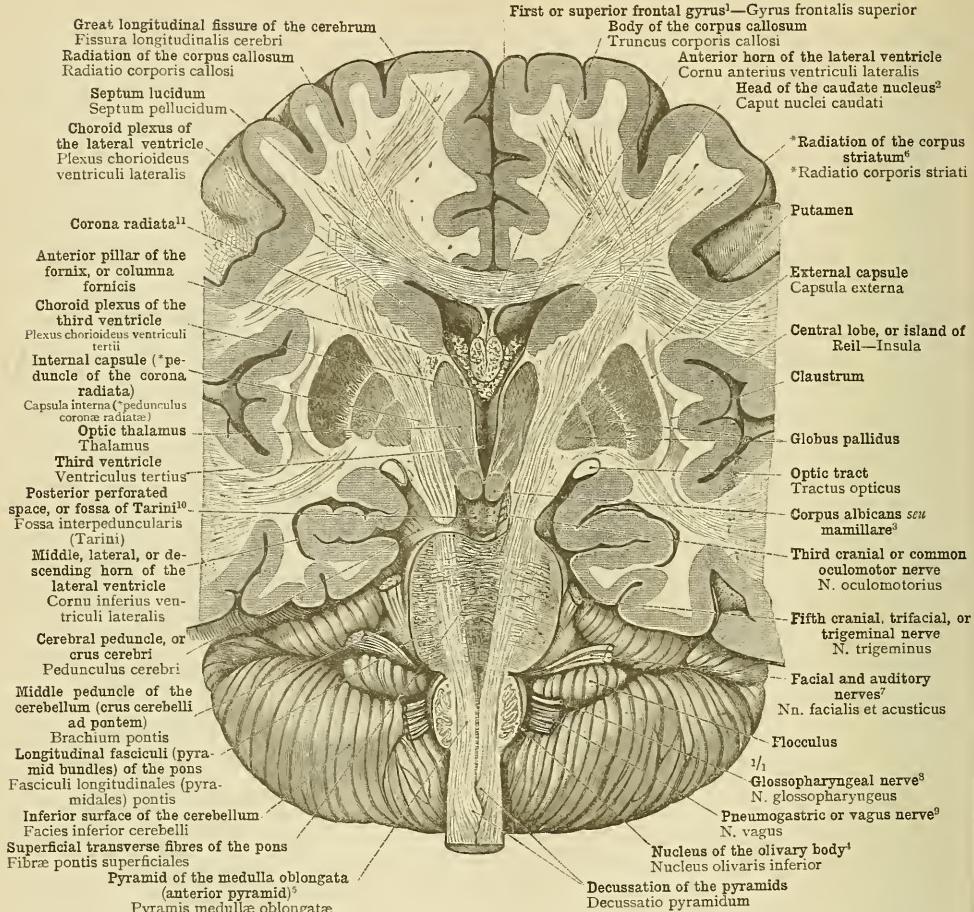


FIG. 1216.—TRANSVERSE SECTION THROUGH THE BRAIN IN THE DIRECTION OF THE MEDULLA OBLONGATA AND THE CEREBRAL PEDUNCLES OR CRURA CEREBRI. THE COURSE OF THE PYRAMIDAL TRACT FROM THE DECUSSATION OF THE PYRAMIDS UPWARDS, THROUGH THE PYRAMID OF THE MEDULLA OBLONGATA (ANTERIOR PYRAMID—see Appendix, note 309), THE PONS VAROLII, AND THE CRUSTA OF THE CEREBRAL PEDUNCLE OR CRUS CEREBRI, INTO THE INTERNAL CAPSULE, WHERE IT ENTERS THE *PEDUNCLE OF THE CORONA RADIATA, PEDUNCULUS CORONÆ RADIATAE. IN THE MEDULLARY CENTRE OR WHITE MATTER OF THE CEREBRUM (MEDITULLIUM), WE SEE THE INTERLACEMENT OF THE RADIATION OF THE CORPUS CALLOSUM (RADIATIO CORPORIS CALLOSI) WITH THE FIBRES OF THE CORONA RADIATA AS THEY DIVERGE FROM THE INTERNAL CAPSULE, AND WITH THE FIBRES OF THE *RADIATION OF THE CORPUS STRIATUM (RADIATIO CORPORIS STRIATI—see Appendix, note 301).

¹ See Appendix, note 388.

² See note 1 to p. 766.

³ Also known as the *bulla of the fornix*.

⁴ Or (*inferior*) olfactory nucleus; also known as the *corpus dentatum of the olive*. See Appendix, note 355.

⁵ See Appendix, note 301.

⁶ In Soemmerring's enumeration, the *facialis* is the seventh, the *auditory* the eighth cranial nerve; in that of Willis the former is the *portio dura*, the latter the *portio molles*, of the seventh cranial nerve.

⁷ Ninth cranial nerve in Soemmerring's enumeration; first trunk of the eighth cranial nerve in that of Willis.

⁸ Tenth cranial nerve in Soemmerring's enumeration; second trunk of the eighth cranial nerve in that of Willis.

⁹ See Appendix, note 388.

¹⁰ Or, *fibrous cone* (Mayo).

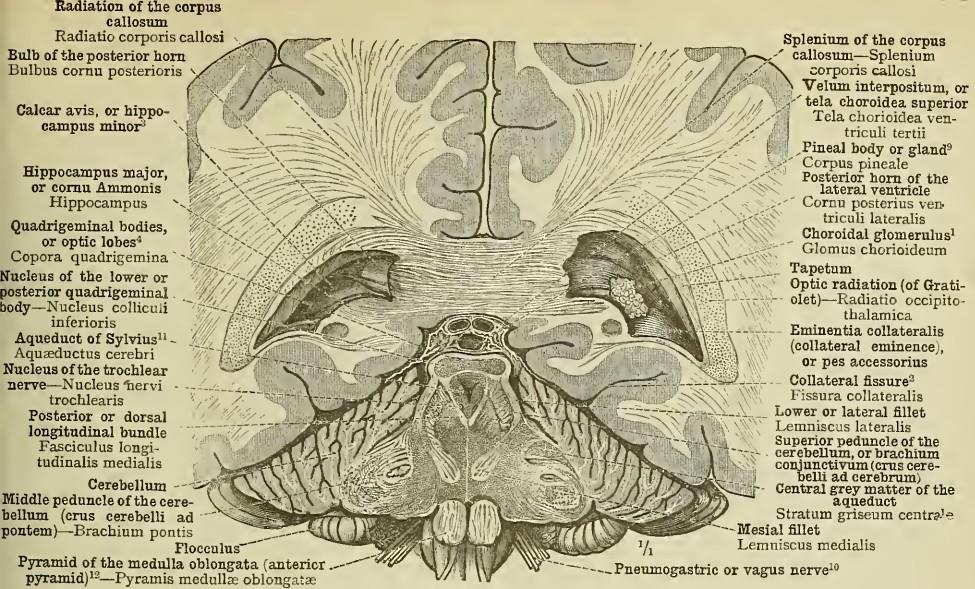


FIG. 1217.—CORONAL SECTION, PASSING BEHIND THE PONS VAROLII, THROUGH THE UPPER EXTREMITIES OF THE PYRAMIDS AND THROUGH THE SPLENUM OF THE CORPUS CALLOSUM. ANTERIOR SURFACE OF POSTERIOR SEGMENT. A VIEW IS OBTAINED INTO THE POSTERIOR HORNS OF THE LATERAL VENTRICLES.

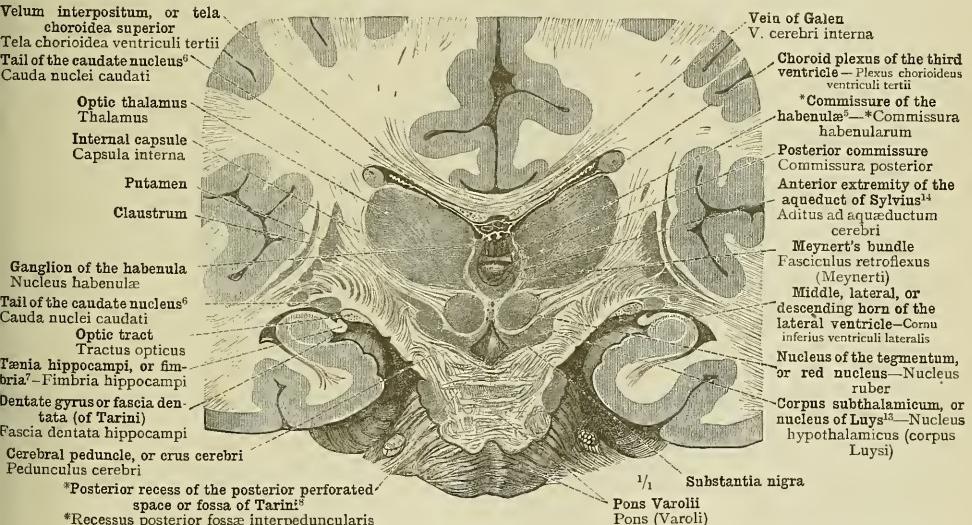


FIG. 1218.—CORONAL SECTION, PASSING THROUGH THE ANTERIOR PORTION OF THE PONS VAROLII, THE OPTIC THALAMI, AND THE POSTERIOR EXTREMITY OF THE LENTICULAR NUCLEUS. ANTERIOR SURFACE OF POSTERIOR SEGMENT. A VIEW IS OBTAINED OF THE POSTERIOR WALL OF THE THIRD VENTRICLE. THE CENTRAL PORTION OR BODY AND THE MIDDLE, LATERAL, OR DESCENDING HORN OF THE LATERAL VENTRICLE ARE CUT ACROSS BY THE SECTION.

¹ See note 3 to p. 781.

² Sometimes regarded as the fourth temporal sulcus.

³ Or ergot (Morand).

⁴ See note 5 to p. 760.

⁵ Middle or the upper or dorsal portion of the pedunculus corporis or habenula (Quain), or transverse frenulum of the pineal body (Macculloch). See Appendix, note 396.

⁶ Called by Macculloch the corpus fimbriatum. See Appendix, note 396.

⁷ Known also as the conarium and as the epiphysis cerebris. See Appendix, note 365.

⁸ Tenth cranial nerve in Soemmerring's enumeration; second trunk of the eighth cranial nerve in that of Willis.

⁹ Or iter a tertio ad quartum ventriculatum. See Appendix, note 363.

¹⁰ See Appendix, note 409.

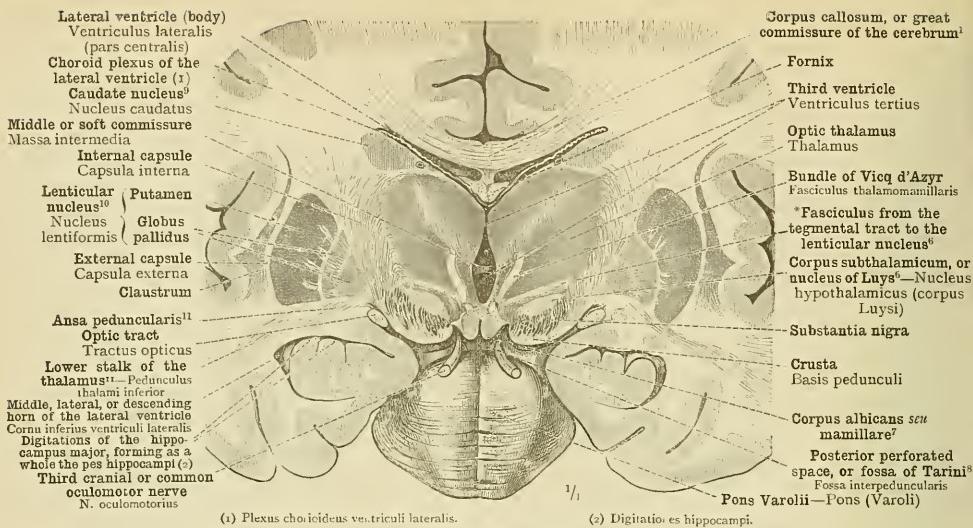


FIG. 1219.—CORONAL SECTION IN FRONT OF THE PONS, PASSING THROUGH THE CRURA CEREPRI OR CEREBRAL PEDUNCLES AND THE CORPORA MAMILLARIA SEU ALBICANTIA. ANTERIOR SURFACE OF POSTERIOR SEGMENT. THE THIRD VENTRICLE IS CUT ACROSS, ALSO THE BODY AND THE DESCENDING HORN OF THE LATERAL VENTRICLE; THE DESCENDING HORN IS DIVIDED CLOSE TO ITS ANTERIOR EXTREMITY.

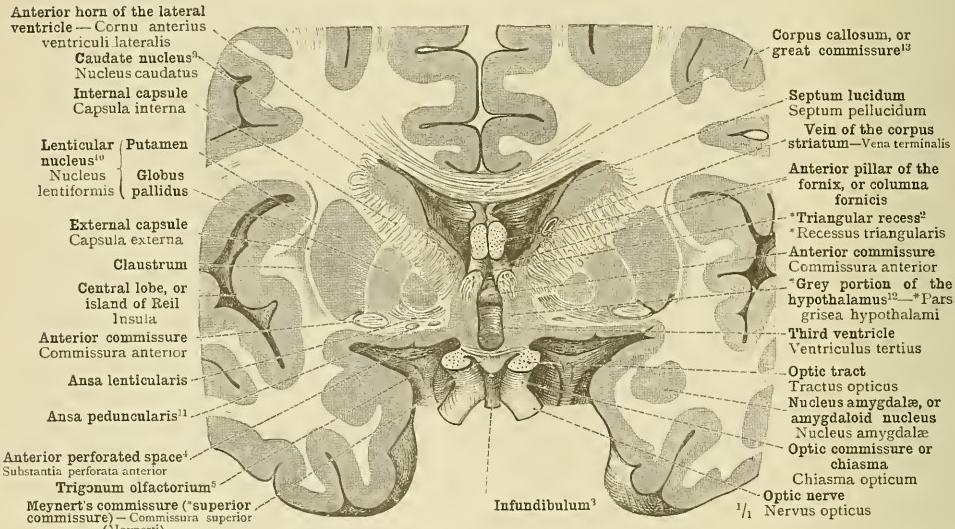


FIG. 1220.—CORONAL SECTION BEHIND THE OPTIC COMMISSURE OR CHIASMA, PASSING THROUGH THE INFUNDIBULUM AND THE ANTERIOR PILARS OF THE FORNIX OR COLUMNAE FORNICIS. POSTERIOR SURFACE OF ANTERIOR SEGMENT. A VIEW IS OBTAINED OF THE INTERIOR OF THE ANTERIOR HORNS OF THE LATERAL VENTRICLES, AND THE ANTERIOR WALL OF THE THIRD VENTRICLE IS DISPLAYED.

¹ Formerly known as *trabs cerebri*.

² See Appendix, note 3⁶². ³ See Appendix, note 3⁶⁴. ⁴ The grey matter forming the floor of the *anterior perforated space* is distinguished by the name of the *anterior perforated plate* or *lamina*.

⁵ See Appendix, note 3⁶⁵.

⁶ See Appendix, note 4⁷². ⁷ Sometimes called the *bulb of the fornix*.

⁸ See Appendix, note 3⁶².

⁹ Or *intraventricular portion* (or *nucleus*) of the *corpus striatum*. See note 1 to p. 765.

¹⁰ Or *extraventricular portion* (or *nucleus*) of the *corpus striatum*. See note 1 to p. 766.

¹¹ Quain uses the term's *ansa peduncularis* and *lower stalk of the thalamus* as synonymous. Fig. 1219 shows that the two form a continuous strand of fibres.

¹² See Appendix, note 4⁷³.

¹³ Formerly called *trabs cerebri*.

Corpus callosum, or great commissure of the cerebrum¹

Fornix

Third ventricle
Ventriculus tertius

Optic thalamus
Thalamus

Bundle of Vieq d'Azyr
Fasciculus thalamomamillaris

* Fasciculus from the tegmental tract to the lenticular nucleus⁸

Corpus subthalamicum, or

nucleus of Luys⁹—Nucleus hypothalamicus (corpus

Luysi)

Substantia nigra

Crusta
Basis pedunculi

Corpus albicans seu mamillare⁷

Posterior perforated space, or fossa of Tarini⁸
Fossa interpeduncularis

Pons Varolii—Pons (Varoli)

(2) Digitationes hippocampi.

Corpus callosum, or great commissure¹³

Septum lucidum
Septum pellucidum

Vein of the corpus striatum—Vena terminalis

Anterior pillar of the fornix, or columnae fornicis

* Triangular recess²

* Recessus triangularis

Anterior commissure

Commissura anterior

* Grey portion of the hypothalamus¹²—* Pars grisea hypothalami

Third ventricle

Ventriculus tertius

Optic tract

Tractus opticus

Nucleus amygdala, or

amygdaloid nucleus

Nucleus amygdala

Optic commissure or chiasma

Chiasma opticum

Optic nerve

Nervus opticus

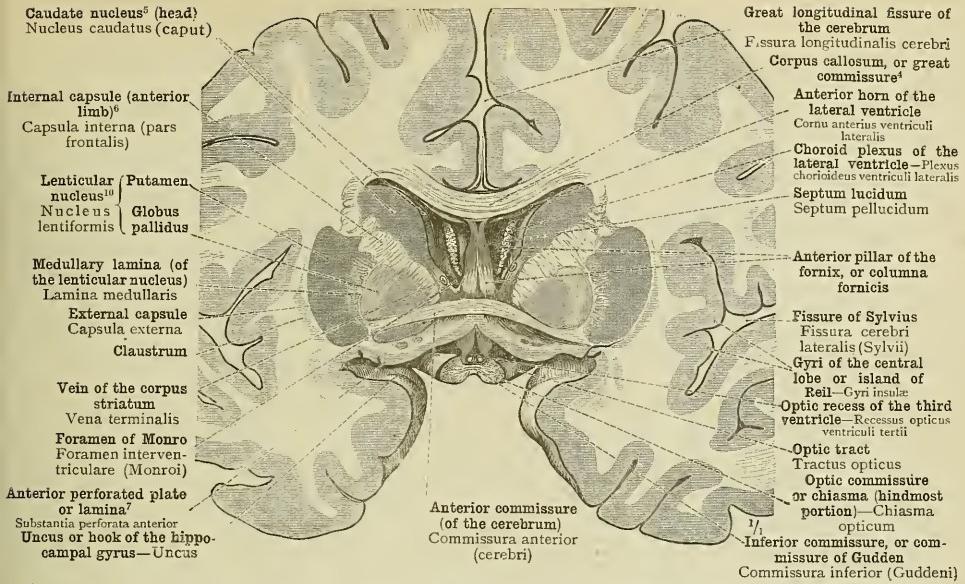


FIG. 1221.—CORONAL SECTION PASSING THROUGH THE OPTIC COMMISSURE OR CHIASMA AND THROUGH THE ANTERIOR COMMISSURE OF THE CEREBRUM. ANTERIOR SURFACE OF POSTERIOR SEGMENT. A VIEW IS OBTAINED INTO THE THIRD VENTRICLE FROM BEFORE.

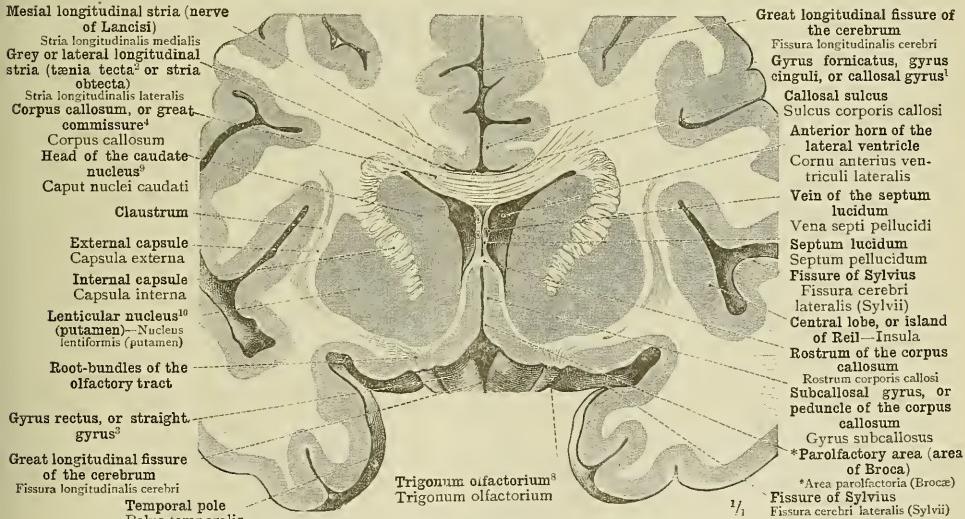


FIG. 1222.—CORONAL SECTION PASSING IN FRONT OF THE ANTERIOR COMMISSURE OF THE CEREBRUM AND THROUGH THE ANTERIOR EXTREMITIES OF THE CAUDATE AND LENTICULAR NUCLEI (see note¹ to p. 766). POSTERIOR SURFACE OF ANTERIOR SEGMENT. A VIEW IS OBTAINED OF THE ANTERIOR WALLS OF THE ANTERIOR HORNS OF THE LATERAL VENTRICLES.

¹ See Appendix, note 390.

² Also called the interventricular portion (or nucleus) of the corpus striatum. See note¹ to p. 766.

³ See Appendix, note 404.

⁴ See Appendix, note 398.

⁵ See note¹ to p. 766.

⁶ Also called the extraventricular portion (or nucleus) of the corpus striatum. See note¹ to p. 766.

³ See Appendix, note 367.

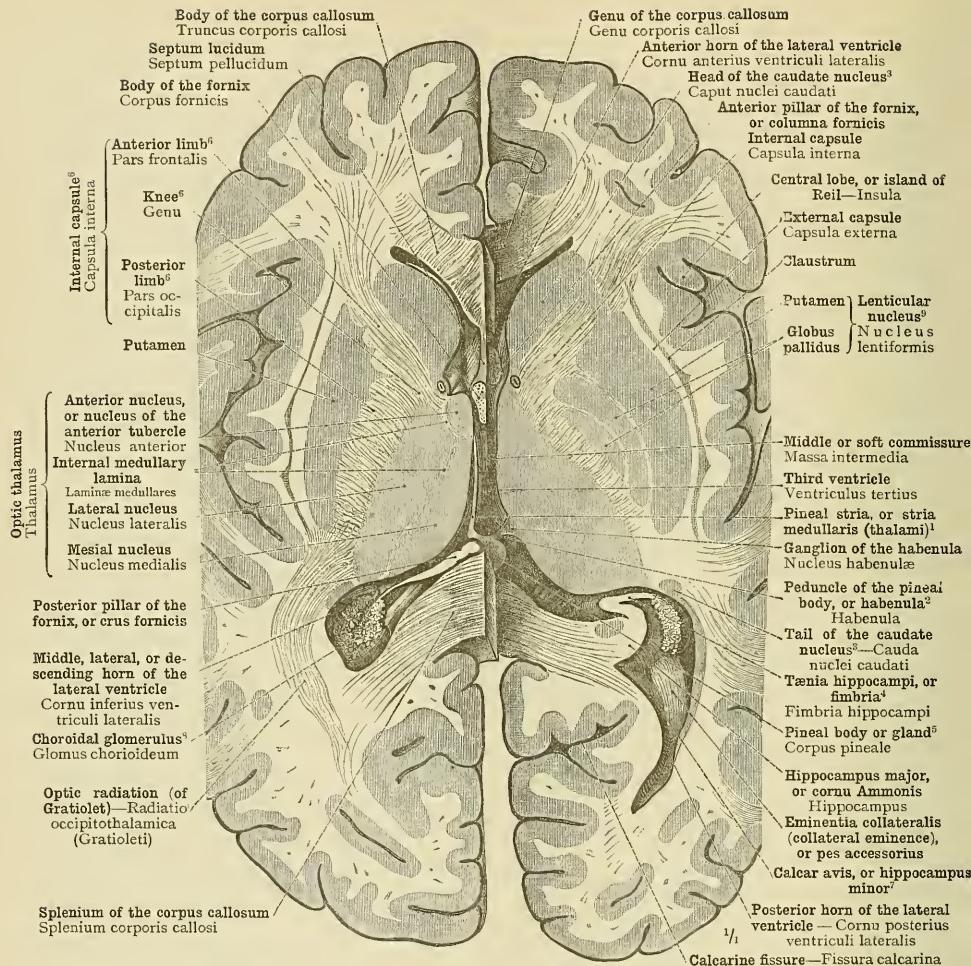
⁴ Formerly called *trabs cerebri*.

⁷ I.e., the grey matter forming the floor of the anterior perforated space.

⁸ See note¹ to p. 766.

⁹ See note¹ to p. 766.

¹⁰ Also called the extraventricular portion (or nucleus) of the corpus striatum. See note¹ to p. 766.



¹ Also called *tænia forniciis*. See Appendix, notes 359 and 382.

² See note 1 to p. 766.

³ Known also as the conarium and as the *epiphysis cerebri*. See Appendix, note 331.

⁴ See Appendix, note 401.

⁵ Also called the *extraventricular portion* (or *nucleus*) of the *corpus striatum*. See note 1 to p. 766.

² See Appendix, note 355.

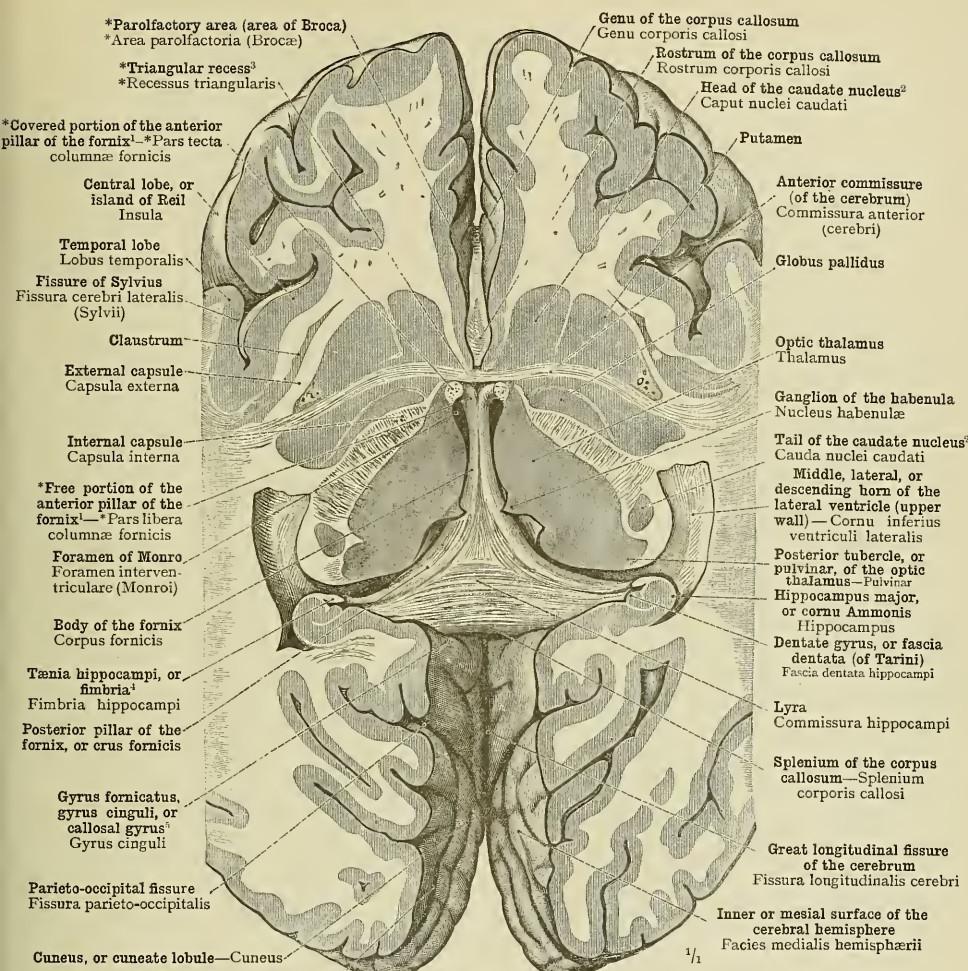
⁴ Called by Macalister the *corpus fibrillatum*. See Appendix, note 392.

⁵ See Appendix, note 331.

⁶ See note 3 to p. 781.

FIG. 1223.—ON THE RIGHT SIDE OF THE BRAIN THE PLANE OF SECTION IS ABOUT 1·5 CENTIMETRES (0·6 INCH) DEEPER THAN ON THE LEFT SIDE. WHILST, THEREFORE, ON THE LEFT SIDE THE OPTIC THALAMUS AND THE CAUDATE AND LENTICULAR NUCLEI ARE CUT ACROSS NEAR THEIR SUMMITS, ON THE RIGHT SIDE THESE BODIES ARE DIVIDED A LITTLE BELOW THE MIDDLE OF THEIR VERTICAL EXTENT, AND THE DIVISION OF THE LENTICULAR NUCLEUS INTO THREE ZONES IS DISPLAYED. ON THE LEFT SIDE THE COMMON ENTRANCE TO THE POSTERIOR AND MIDDLE (LATERAL OR DESCENDING) HORNS OF THE LATERAL VENTRICLE, WITH THE CHOROIDAL GLOMERULUS (see note ³ to p. 781), APPEARS IN THE PLANE OF SECTION, WHILST ON THE RIGHT SIDE THE POSTERIOR HORN IS DIVIDED ALONG ITS LONG AXIS, AND THE MIDDLE HORN IS CUT ACROSS OBLIQUELY. ON BOTH SIDES THE INTERNAL CAPSULE OF THE LENTICULAR NUCLEUS, CAPSULA LENTIS INTERNA, IS SEEN IN HORIZONTAL SECTION, ITS KNEE, GENU, AND ITS ANTERIOR AND POSTERIOR LIMBS, PARS FRONTALIS ET PARS OCCIPITALIS, BEING DISPLAYED (see Appendix, note 404). THE EXTERNAL CAPSULE OF THE LENTICULAR NUCLEUS, CAPSULA LENTIS EXTERNA, AND THE CLAUSTRUM ARE ALSO SHOWN. SEEN FROM ABOVE.

Horizontal Section through the Cerebrum.



¹ See Appendix, note 391.
² See note 1 to p. 766.
³ Called by Macalister *corpus fimbriatum*. See Appendix, note 392.

⁴ See Appendix, note 389.
⁵ See Appendix, note 390.

FIG. 1224.—THE PLANE OF THE SECTION IS THAT OF THE ANTERIOR COMMISSURE OF THE CEREBRUM, AND THE LOWER SURFACE OF THE UPPER SEGMENT IS DEPICTED, AS SEEN FROM BELOW. THE OPTIC THALAMI AND THE CAUDATE AND LENTICULAR NUCLEI ARE CUT ACROSS NEAR THEIR INFERIOR EXTREMITIES; THE LOWER FREE SURFACES OF THE FORNIX AND THE CORPUS CALLOSUM ARE DISPLAYED. THE HIPPOCAMPUS MAJOR OR CORNU AMMONIS IS CUT ACROSS ALMOST TRANSVERSELY NEAR ITS POSTERIOR EXTREMITY; PART OF THE UPPER WALL OF THE POSTERIOR HORN OF THE LATERAL VENTRICLE IS DISPLAYED. THE ANTERIOR COMMISSURE IS SHOWN IN ITS ENTIRE LENGTH, AND IS SEEN AT EITHER SIDE OF THE SECTION TO PASS INTO THE WHITE MATTER OR MEDULLARY CENTRE OF THE TEMPORAL LOBE.

Horizontal Section through the Cerebrum.

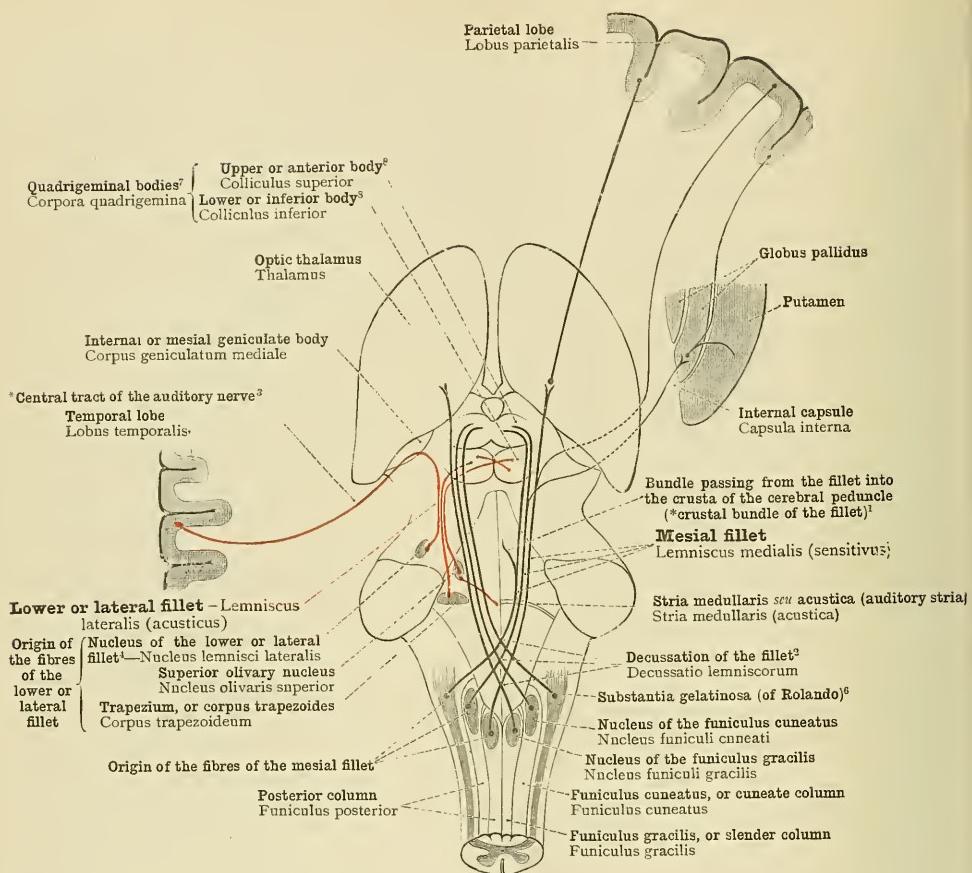


FIG. 1225.—DIAGRAMMATIC REPRESENTATION OF THOSE TRACTS OF THE POSTERIOR COLUMN OF THE SPINAL CORD WHICH REACH THE CEREBRUM WITHOUT PASSING THROUGH THE CEREBELLUM (TRACT OF THE FILLET, OR FILLET PORTION OF THE SEGMENTAL TRACT OR SEGMENTAL SYSTEM⁵). THE COURSE OF THE MESIAL FILLET IS INDICATED BY BLACK LINES, THAT OF THE LOWER OR LATERAL FILLET BY RED LINES.

Regarding the course of the fibres of the cerebral hemisphere, as displayed in Figs. 1225 to 1231, see Appendix, note 46.

⁵ See Appendix, notes 397 and 405.

⁶ See Appendix, note 394.

⁵ *Central Tract of the Auditory Nerve.—In their account of the fillet, after describing the *triangle of the fillet (*trigonum lemnisci—see Appendix, note 395) and the so-called nucleus of the fillet (Schleifkern—see Appendix, note 395), Von Langer and Toldt proceed as follows (*ib. cit.*, p. 657): “The lateral fillet is reinforced by fibres proceeding from the auditory stria (stria medullaris seu acustica) of the opposite side. The indirect upward prolongation of these fibres passes through the brachium of the lower quadrigeminal body into the mesial geniculate body, and thence it is continued to the cortex of the temporal lobe. This is the *central tract of the auditory nerve” (*centrale Bahn des nervus acusticus*).

⁴ See Appendix, note 398.

⁵ See Appendix, note 405.

⁷ See note 3 to p. 760.

⁸ See Appendix, note 372.

⁶ The grey matter of the funiculus of Rolando.

Decursus fibrarum cerebralium—The course of the fibres of the brain.

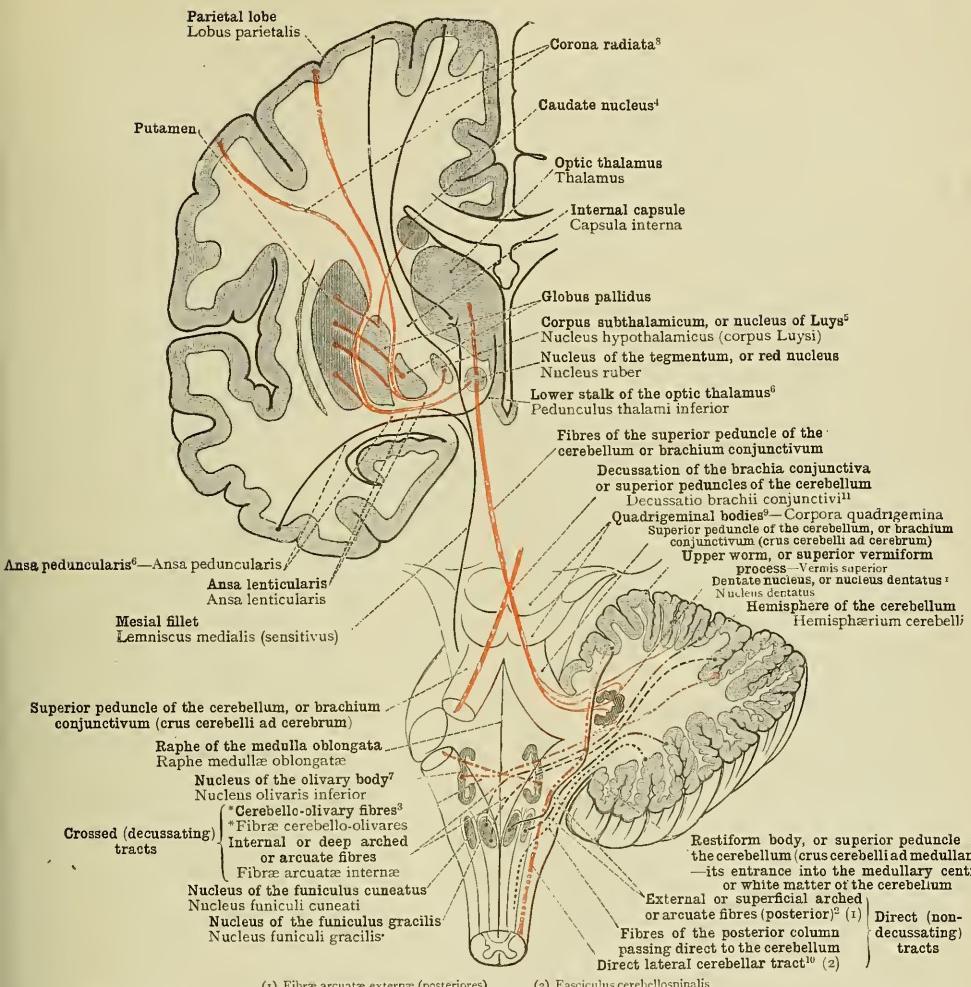


FIG. 1226.—DIAGRAMMATIC REPRESENTATION OF THOSE TRACTS OF THE POSTERIOR COLUMN OF THE SPINAL CORD WHICH PASS THROUGH THE RESTIFORM BODIES INTO THE CEREBELLUM OR PASS THROUGH THE CEREBELLUM ON THEIR WAY TO THE CEREBRUM (DORSAL OR CEREBELLAR PORTION OF THE SEGMENTAL TRACT—see Appendix, note ⁴⁰⁵), AND FIBRES PASSING DIRECT FROM THE POSTERIOR COLUMN TO THE CEREBELLUM. THE DIRECT LATERAL CEREBELLAR TRACT.

¹ Known also as the *corpus acentratum* or *corpus ciliare*.

² See Appendix, note ³⁹³.

³ See Appendix, note ³⁹⁵.

⁴ Also known as the *intraventricular portion* (*or nucleus*) of the *corpus striatum*. See note ¹ to p. 766.

⁵ See Appendix, note ³⁹⁶.

⁶ See Appendix, note ³⁹⁷.

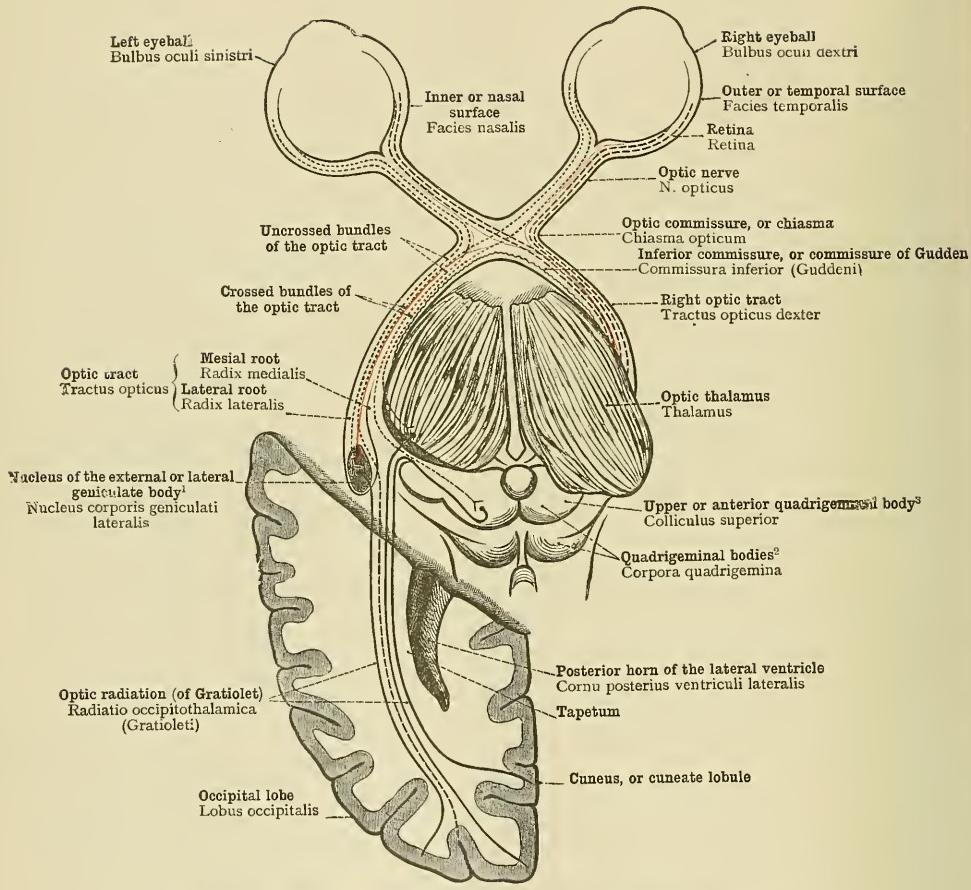
⁷ Or *posterior* olfactory nucleus; also known as the *corpus dentatum* of the olive. See Appendix, note ³⁸⁵.

⁸ Or *fibrosa cone* (Mayo). See note ⁵ to p. 760.

⁹ See Appendix, note ³⁹⁴.

¹⁰ See note ¹¹ to p. 772.

Decursus fibrarum cerebralis—The course of the fibres of the brain.



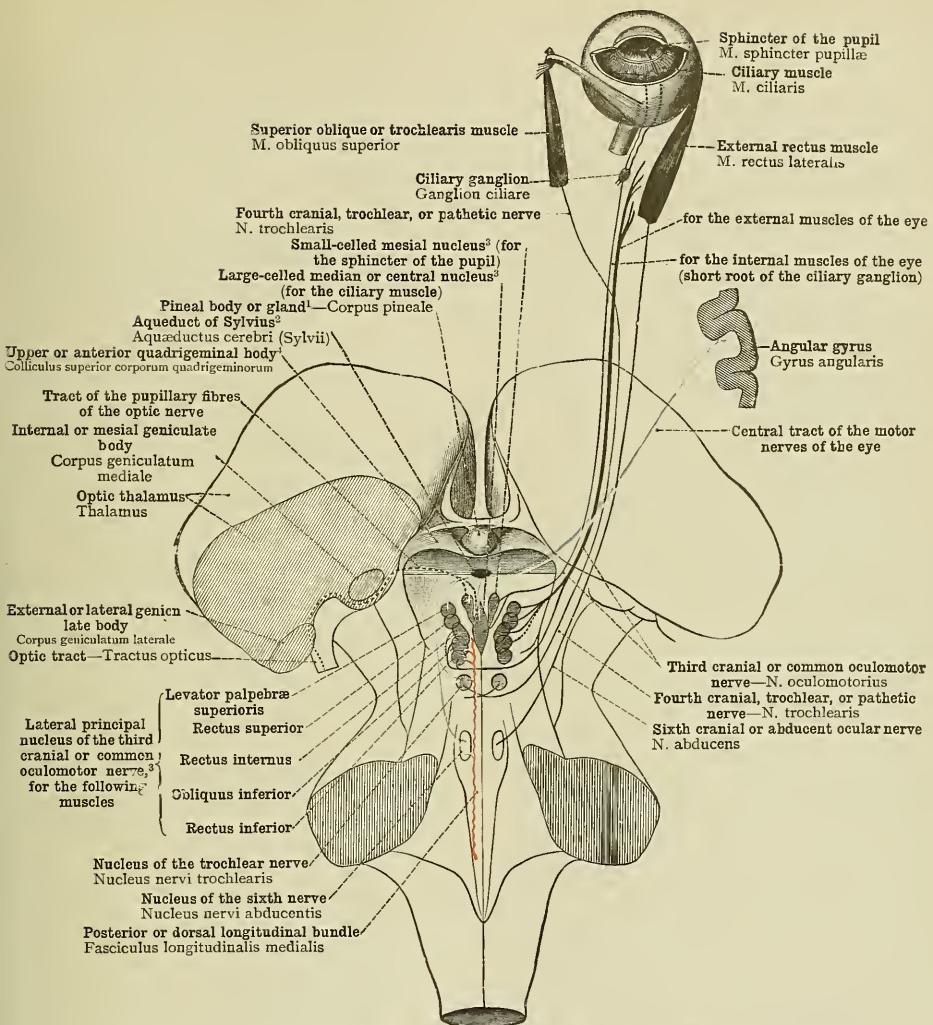
^z See note ⁹ to p. 789.

² See note 5 to p. 760.

³ See Appendix, note 372.

FIG. 1227.—DIAGRAMMATIC REPRESENTATION OF THE COURSE OF THE FIBRES OF THE OPTIC NERVE THROUGH THE OPTIC COMMISSURE OR CHIASMA, AND OF THE CENTRAL PATHS OF CONDUCTION OF VISUAL IMPULSES. THE FASCICULI PROCEEDING FROM THE MACULA LUTEA, SOME OF WHICH ARE CROSSED AND SOME UNCROSSED, ARE INDICATED BY RED LINES.

Recursus fibrarum cerebralium—The course of the fibres of the brain.



¹ Known also as the *conarium* and as the *epiphysis cerebri*. See Appendix, note 365.

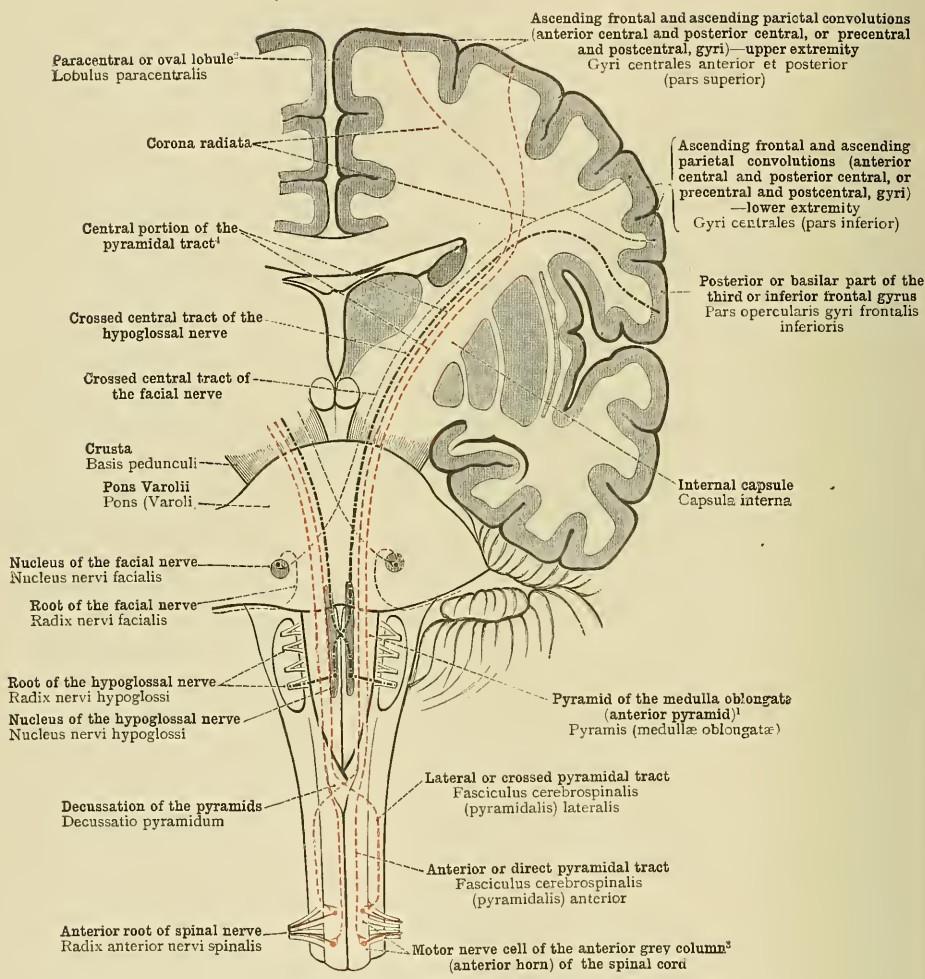
² Or *iter a tertio ad quartum ventriculum*.

³ See Appendix, note 372.

FIG. 1228.—NUCLEI OF ORIGIN OF THE COMMON OCULOMOTOR AND TROCHLEAR NERVES IN THE MID-BRAIN OR MESENCEPHALON ; THEIR CENTRAL TRACT (BLUE), THEIR INTERCONNEXIONS EACH WITH THE OTHER (RED), AND THEIR CONNEXIONS WITH THE NUCLEUS OF THE SIXTH CRANIAL OR AEDUCENT OCULAR NERVE THROUGH THE POSTERIOR OR DORSAL LONGITUDINAL BUNDLE (RED). THE DIVISION OF THE NUCLEUS OF THE THIRD CRANIAL OR COMMON OCULOMOTOR NERVE INTO THE LATERAL PRINCIPAL NUCLEUS, THE SMALL-CELLLED MESIAL NUCLEUS, AND THE LARGE-CELLLED MEDIAN OR CENTRAL NUCLEUS (see Appendix, note 367) ; THE LOCALIZATION OF THE SEVERAL GROUPS OF FIBRES OF THE THIRD NERVE IN THIS NUCLEAR REGION. THE CENTRAL COURSE OF THE SO-CALLED PUPILLARY FIBRES OF THE OPTIC NERVE (REFLEX ARC FOR THE CONTRACTION OF THE PUPIL).

The diagram is based on the researches of Bernheimer.

Decursus fibrarum cerebralium—The course of the fibres of the brain.



¹ See Appendix, note 363.
² See Appendix, note 339.

² See Appendix, note 388.
⁴ See Appendix, note 406.

FIG. 1229.—THE PYRAMIDAL TRACT (RED) AND THE ASSOCIATED CENTRAL TRACTS OF THE HYPOGLOSSAL AND FACIAL NERVES. DIAGRAMMATIC.

Decursus fibrarum cerebrorum—The course of the fibres of the brain.

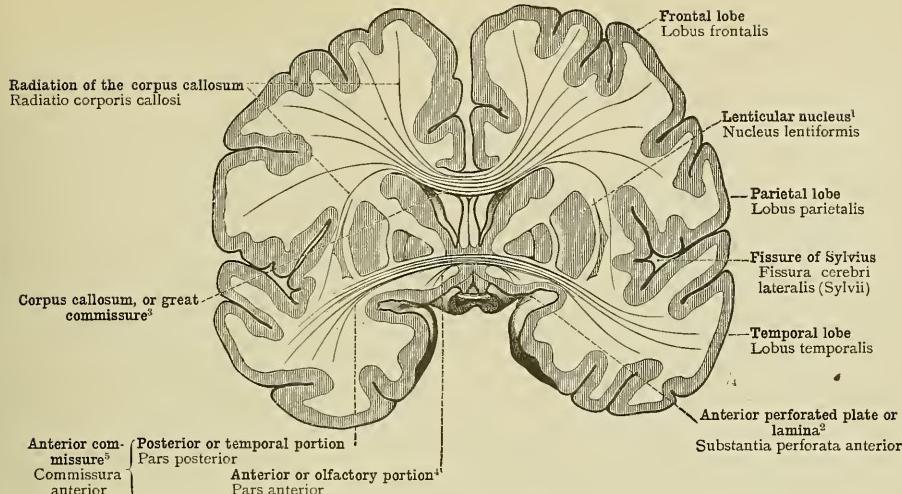


FIG. 1230.—DIAGRAMMATIC REPRESENTATION OF THE TWO PRINCIPAL COMMISSURES OF THE CEREBRUM (see Appendix, note ⁴⁰⁶) : THE CORPUS CALLOSUM OR GREAT COMMISSURE WITH ITS RADIATION; AND THE ANTERIOR COMMISSURE, WITH ITS ANTERIOR OR OLFACTORY PORTION, CONNECTED WITH THE FRONTAL LOBE, AND ITS POSTERIOR OR TEMPORAL PORTION, RADIATING INTO THE TEMPORAL LOBE. (See Appendix, note ⁴⁰⁵.)

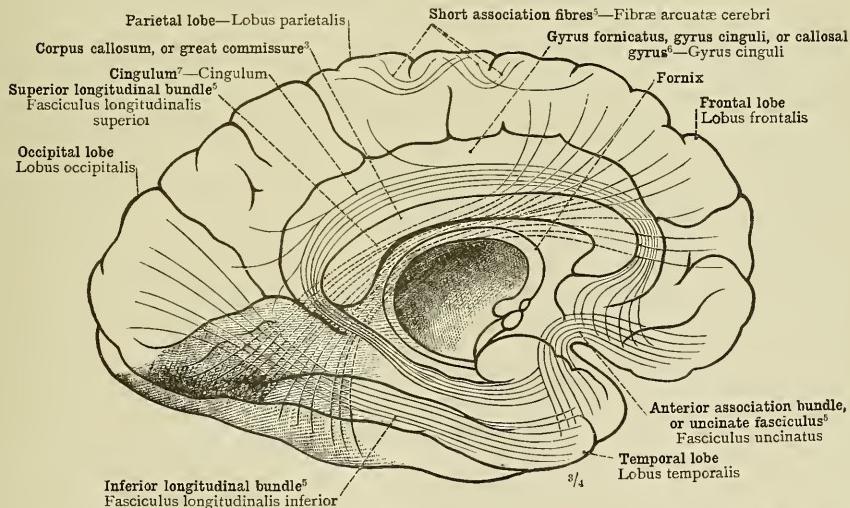
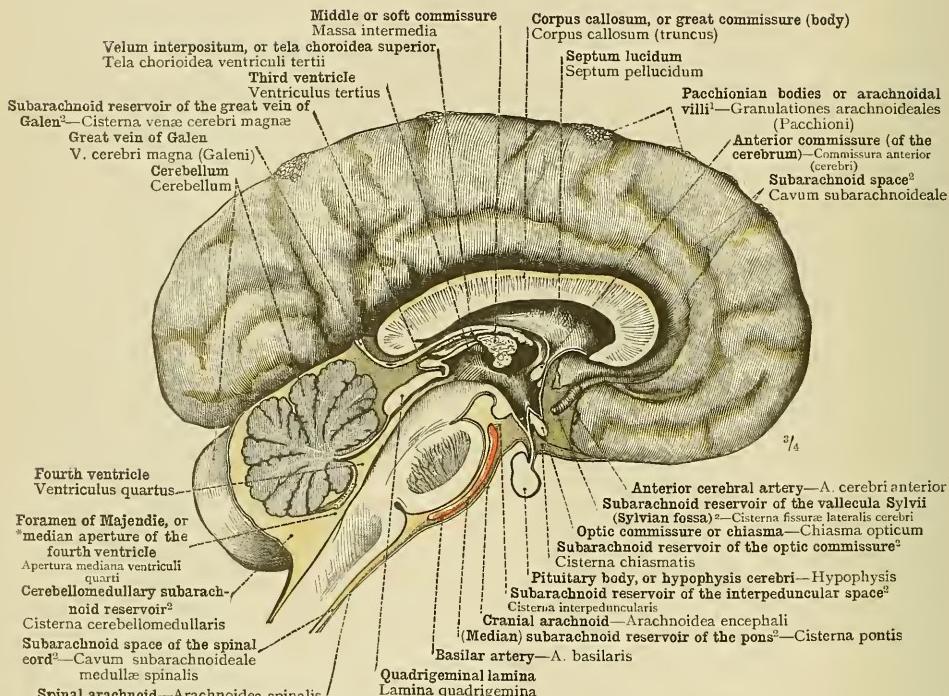


FIG. 1231.—THE PRINCIPAL BUNDLES OF ASSOCIATION FIBRES (see Appendix, note ⁴⁰⁶) OF THE MEDULLARY CENTRE OF THE CEREBRAL HEMISPHERE, SHOWN IN DIAGRAMMATIC PROJECTION ON THE MESIAL SURFACE OF THE HEMISPHERE.

¹ Also known as the *extraventricular portion* (or *nucleus*) of the *corpus striatum*. See note ¹ to p. 766.
² Forming the floor of the *anterior perforated space*.
³ Formerly known as the *trahs cerebri*. See Appendix, note ⁴⁰⁶.
⁴ See Appendix, note ⁴⁰⁵.
⁵ See Appendix, note ⁴⁰⁵.
⁶ See Appendix, note ³⁹⁹.

⁷ Also known as the *fillet of the corpus callosum* and as the *covered band of Reil*. See Appendix, note ⁴⁰⁶.

Decursus fibrarum cerebralium—The course of the fibres of the brain.



¹ Known also as *Pacchionian glands* or *Pacchionian granulations*.

² See Appendix, note 49.

FIG. 1232.—THE CRANIAL ARACHNOID, ARACHNOIDEA ENCEPHALI, AND THE SUBARACHNOID SPACE, CAVUM SUBARACHNOIDEALE, WITH ITS VARIOUS SUBDIVISIONS AND RESERVOIRS, AS SEEN IN A MEDIAN SAGITTAL SECTION OF THE BRAIN. THE PACCHIONIAN BODIES OR ARACHNOIDAL VILLI, GRANULATIONES ARACHNOIDEALES (see note ¹ above).

The subarachnoid space has been filled with coloured gelatine, and appears in some places somewhat more distended than in the normal condition.

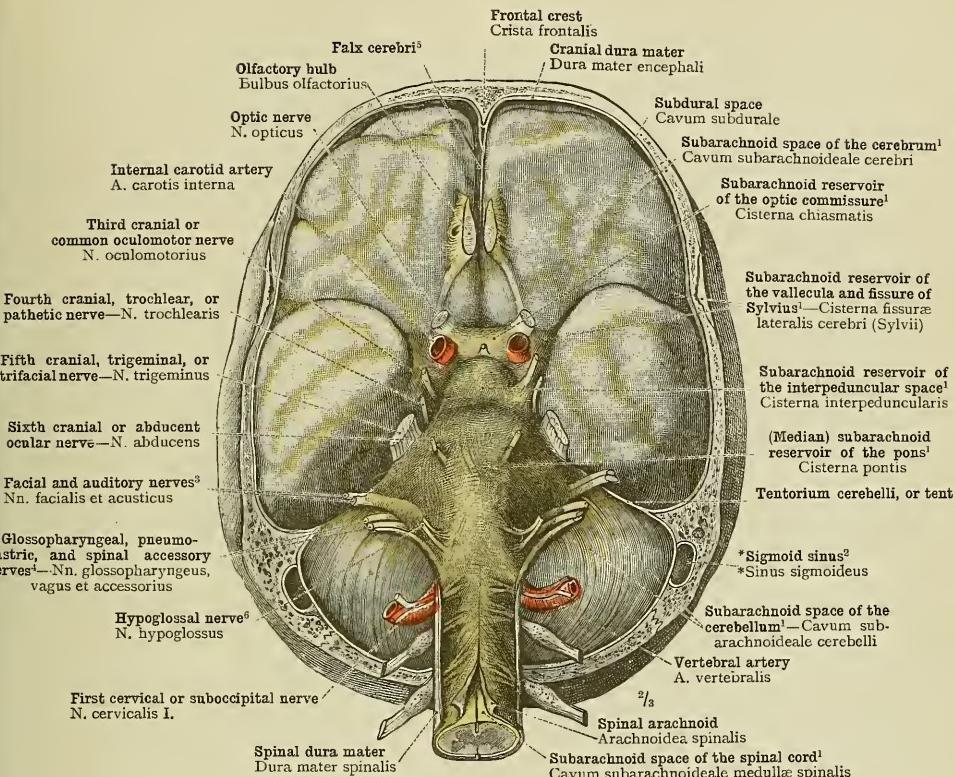


FIG. 1233.—THE CRANIAL ARACHNOID, ARACHNOIDEA ENCEPHALI; FORM AND EXTENT OF THE SUBARACHNOID SPACE, CAVUM SUBARACHNOIDEALE (WHICH HAS BEEN INJECTED WITH GELATINE), ON THE BASAL ASPECT OF THE BRAIN, AND, MORE ESPECIALLY, THE RELATIONS OF THIS SPACE TO THE ROOTS OF THE CRANIAL NERVES.

The gelatine was injected before the head was opened, and the head was then hardened entire in formalin solution. Subsequently the base of the skull and the cervical vertebrae were carefully removed with saw and chisel and the dura mater was dissected off. In the region of the spinal cord the arachnoid was divided for a short distance by a median incision, and the subarachnoid space of the spinal cord was thus opened. Between the arachnoid and the dura mater where that membrane has been preserved in apposition with the calvaria, the subdural space of the brain is visible.

¹ See Appendix, note #29.

² See Appendix, note 410.

³ The *facial nerve* is the seventh cranial nerve in Soemmering's enumeration; the *partio dura* of the seventh in that of Willis. The *auditory nerve* is the eighth cranial nerve in Soemmering's enumeration; the *partio nialis* of the seventh in that of Willis.

⁴ The *glossopharyngeal* is the ninth, the *pneumogastric* or *vagus* the tenth, and the *spinal accessory* the eleventh cranial nerve in Soemmering's enumeration; they are respectively the first, second, and third trunks of the eighth cranial nerve in that of Willis.

⁵ Sometimes called the *falx major*.

⁶ Twelfth cranial nerve in Soemmering's enumeration, ninth in that of Willis; known also as the *lingual motor nerve*.

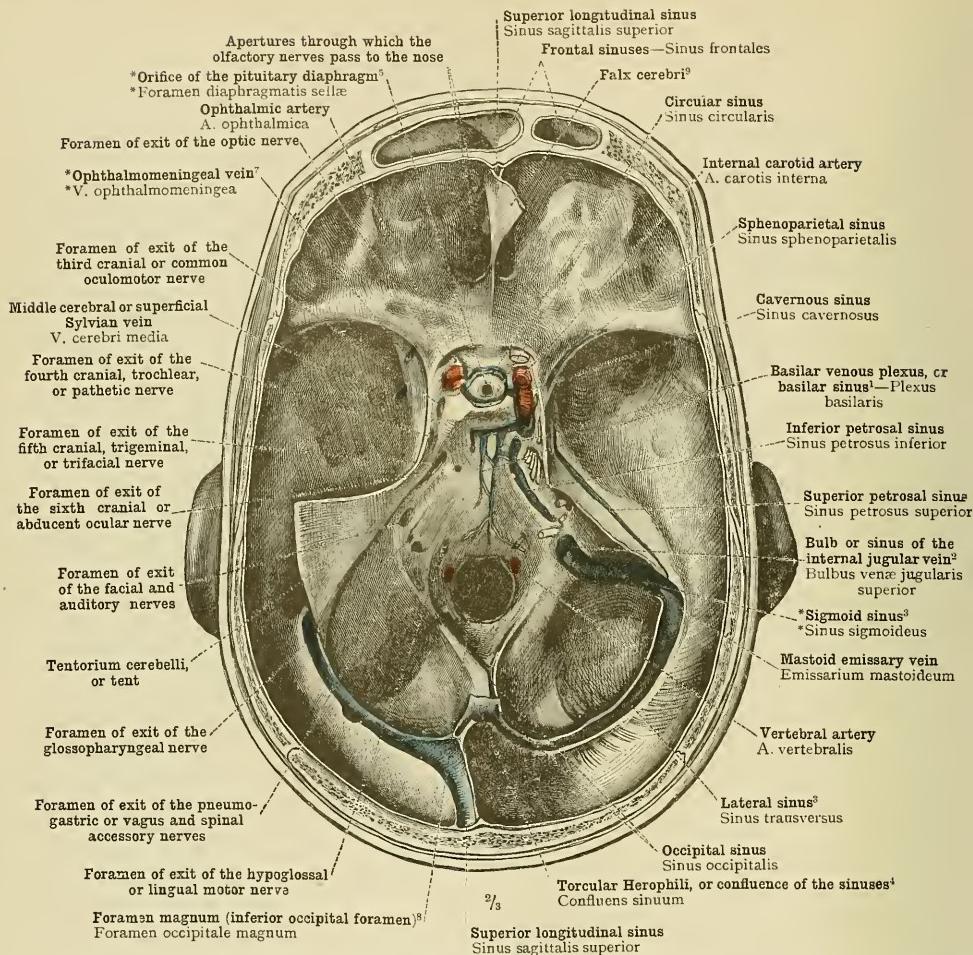


FIG. 1234.—THE CRANIAL DURA MATER, DURA MATER ENCEPHALI, WITH THE SINUSES OF THE DURA MATER (VENOUS SINUSES OF THE CRANIUM, MENINGEAL SINUSES), SINUS DURÆ MATRIS, ON THE INTERNAL SURFACE OF THE BASE OF THE SKULL. ON THE LEFT SIDE THE FORAMINA OF EXIT⁶ OF THE CRANIAL NERVES THROUGH THE DURA MATER ARE DISPLAYED; ON THE RIGHT SIDE THE ROOTS OF THESE NERVES ARE DISPLAYED AS THEY ARE ABOUT TO PERFORATE THE DURA MATER.

The tentorium cerebelli, or tent, has for the most part been removed; only on the left side has a small portion of this structure been preserved, and this remnant has been turned forwards along its line of attachment to the superior border (or angle) of the petrous portion of the temporal bone. Most of the sinuses have been opened.

¹ Sometimes known as the *transverse sinus*. The *basilar venous plexus* must be carefully distinguished from the *basilar* or *basal vein, vena basalis Rosenthalii* shown in Fig. 1202, p. 754. See Appendix to Part V., notes 230 and 237.

² See Appendix to Part V., note 121.

³ See Appendix to Part V., note 266.

⁴ See Appendix, note 410.

⁵ Foramina of Exit.—The term *foramen of exit* is employed as the most suitable English equivalent of the German *Austrittsöffnung* or *Durchtrittsöffnung*. The words “through the dura mater” are to be understood when not expressed.

⁶ *Ophthalmomeningeal Vein*.—The vein thus named by the author is a communicating branch between the *superior ophthalmic vein* and the *middle cerebral or superficial Sylvian vein*.

⁷ See Appendix, note 424.

⁸ Sometimes called the *fala major*.

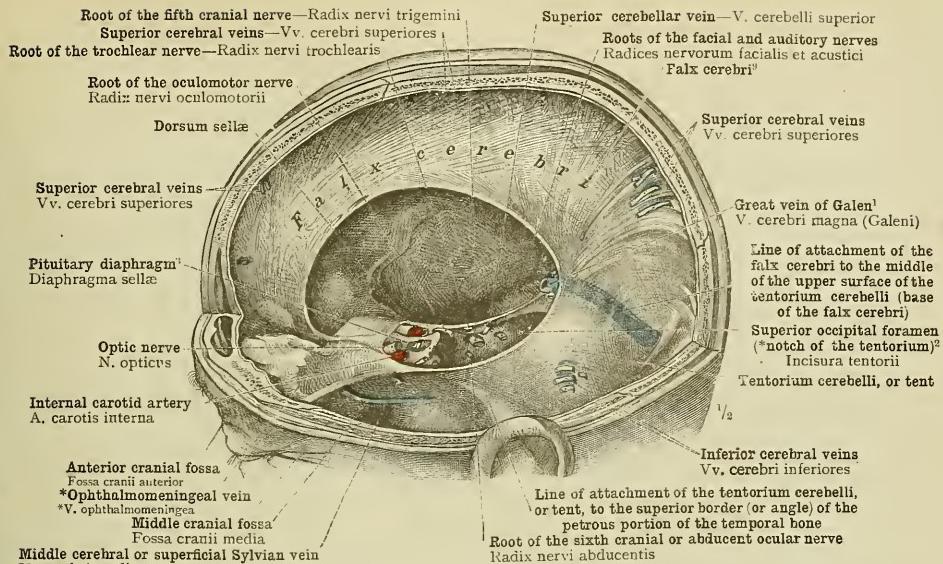


FIG. 1235.—THE FALX CEREBRI AND THE TENTORIUM CEREBELLI, OR TENT, SEEN FROM THE LEFT SIDE. THE TRUNKS OF THE CEREBRAL VEINS THAT OPEN INTO THE VENOUS SINUSES OF THE CRANUM.

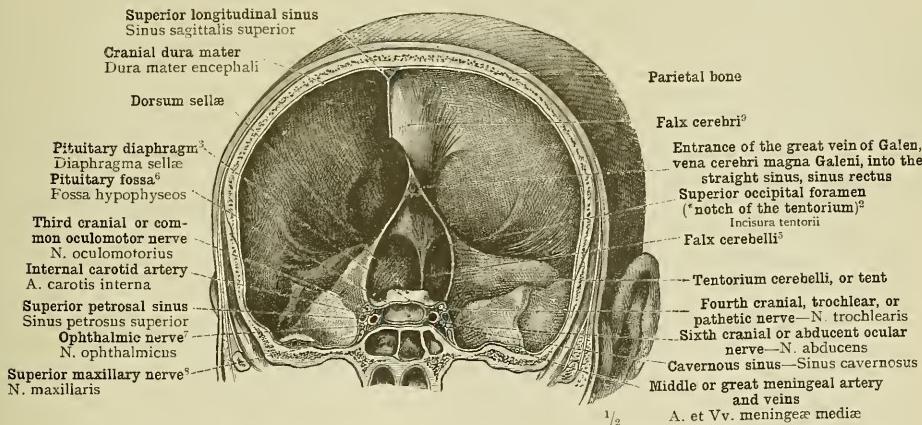


FIG. 1236.—THE TENTORIUM CEREBELLI, OR TENT, THE POSTERIOR PORTION OF THE FALX CEREBRI (FALK MAJOR), AND THE FALX CEREBELLI (FALK MINOR), AS SEEN FROM BEFORE IN A CORONAL SECTION OF THE HEAD. THE SECTION PASSES THROUGH THE PITUITARY FOSSA (see note ² to p. 60, in Part I.) AND THE CAVERNOUS SINUSES (see note ³ to p. 60, in Part I.) AND THE CAVERNOUS SINUSES (see note ⁴ to p. 60, in Part I.) AND THE IMMEDIATELY BEHIND THE PITUITARY BODY OR HYPOPHYSIS CEREBRI; IN ADDITION, THEREFORE, TO THE STRUCTURES JUST MENTIONED, THE FOLLOWING ARE ALSO DISPLAYED: WITHIN THE CAVITY OF THE CAVERNOUS SINUS, THE INTERNAL CAROTID ARTERY AND THE SIXTH CRANIAL OR ABDUCENT OCULAR NERVE; AND IN THE SINUS, THE THIRD CRANIAL OR COMMON OCULOMOTOR NERVE, THE FOURTH CRANIAL, PATHETIC, OR TROCHLEAR NERVE, THE OPHTHALMIC NERVE (FIRST DIVISION OF THE FIFTH), AND THE SUPERIOR MAXILLARY NERVE (SECOND DIVISION OF THE FIFTH CRANIAL NERVE).

¹ Continued posteriorly into the straight sinus, which is visible in Fig. 1235 through the dura mater along the base of the falx cerebri.

² See Appendix, note 412.

³ By Quain called the operculum or tentorium of the hypophysis. See Appendix, note 413.

⁴ Sometimes called the falx minor.

⁵ Or first division of the fifth cranial, trigeminal, or trifacial nerve.

⁶ Or second division of the fifth cranial, trigeminal, or trifacial nerve.

⁶ See note ² to p. 60, in Part I.

⁹ Sometimes called the falx major.

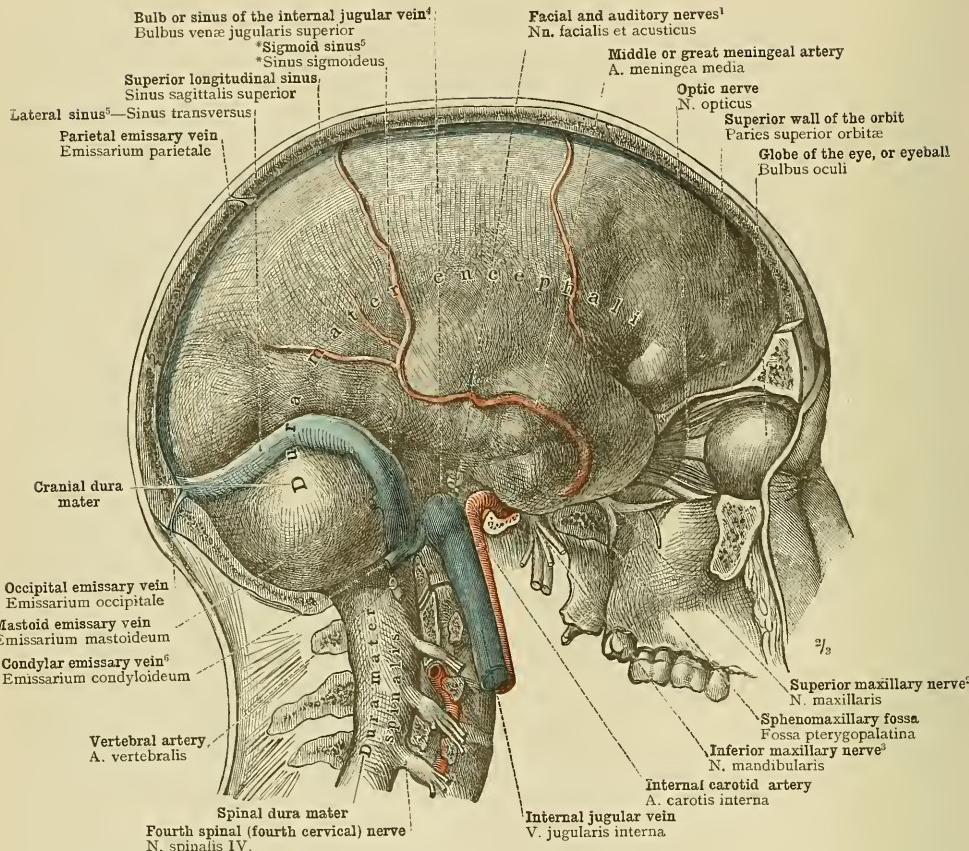


FIG. 1237.—THE CRANIAL DURA MATER, DURA MATER ENCEPHALI, DISPLAYED FROM THE SIDE IN CONTINUITY WITH THE SPINAL DURA MATER, DURA MATER SPINALIS, BY THE REMOVAL OF THE RIGHT HALF OF THE SKULL AND OF THE UPPER CERVICAL VERTEBRÆ. THE SINUSES OF THE DURA MATER (VENOUS SINUSES OF THE CRANIUM, MENINGEAL SINUSES), SINUS DURÆ MATRIS, AND ALSO THE EMISSARY VEINS (EMISSARIA SANTORINI) THAT CONNECT THESE SINUSES WITH THE VEINS OF THE EXTERIOR OF THE SKULL, WERE INJECTED WITH RESIN BY WAY OF THE INTERNAL JUGULAR VEIN.

¹ The *facial nerve* is the seventh cranial nerve in Soemmerring's enumeration, the *portio dura* of the seventh in that of Willis; the *auditory nerve* is the eighth cranial nerve in Soemmerring's enumeration, the *portio molles* of the seventh in that of Willis.

² Or second division of the fifth cranial, trigeminal, or *trifacial nerve*.

³ Or third division of the fifth cranial, trigeminal, or *trifacial nerve*.

⁴ See Appendix to Part V., note 121.

⁵ See Appendix, note 410.

⁶ See Appendix to Part V., note 261.

Meninges encephali—The membranes of the brain.

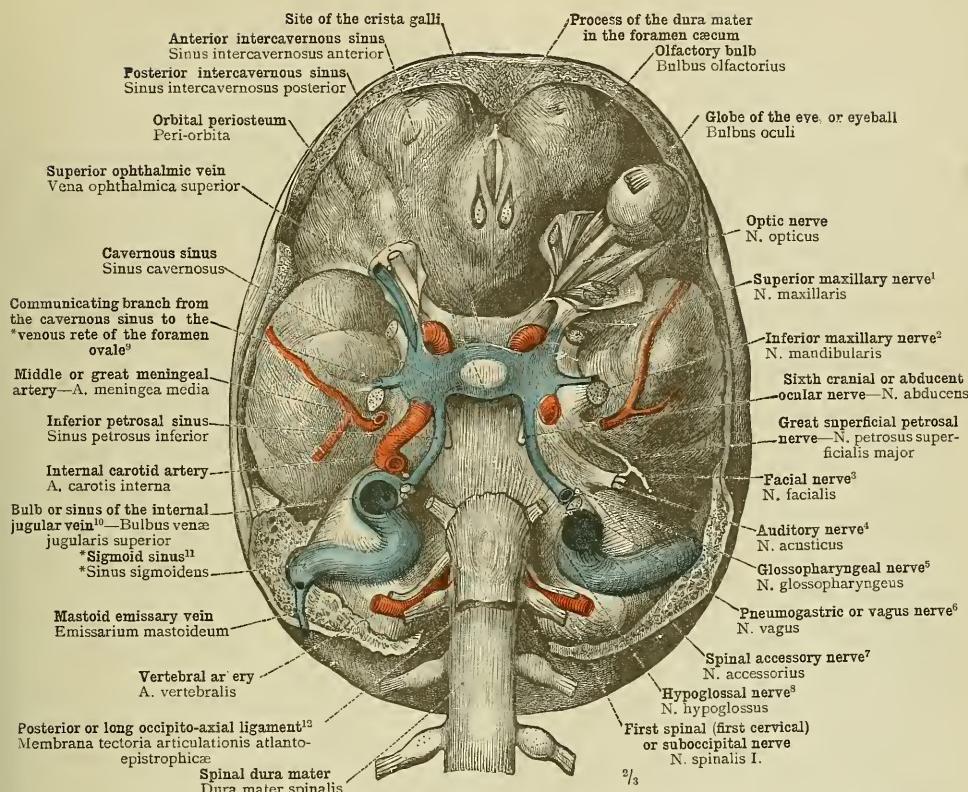


FIG. 1238.—THE CRANIAL DURA MATER, DURA MATER ENCEPHALI, DISPLAYED FROM BELOW IN CONTINUITY WITH THE SPINAL DURA MATER, DURA MATER SPINALIS, BY THE REMOVAL OF THE BASE OF THE SKULL AND THE UPPER CERVICAL VERTEBRAE. THE TUBULAR PROLONGATIONS OF THE DURA MATER WHICH PASS ALONG THE CRANIAL AND SPINAL NERVES AS THEY LEAVE THE CEREBROSPINAL CAVITY ARE VISIBLE.

The basal sinuses of the dura mater (venous sinuses of the cranium, meningeal sinuses), sinus duræ matris, have been distended with blue resin, the arteries with red resin. On the left side of the body, the glossopharyngeal, pneumogastric or vagus, and spinal accessory nerves, and also the bulb or sinus of the internal jugular vein (*see Appendix to Part V., note*¹²¹) and the lowest part of the inferior petrosal sinus, have been drawn apart one from another in the region of the jugular foramen, in order that their mutual relations may be more clearly manifest.

¹ Or second division of the fifth cranial, trigeminal, or trifacial nerve.

² Or third division of the fifth cranial, trigeminal, or trifacial nerve.

³ Seventh cranial nerve in Soemmerring's enumeration; *portio dura* of the seventh in that of Willis.

⁴ Eighth cranial nerve in Soemmerring's enumeration; *portio nuda* of the seventh in that of Willis.

⁵ Ninth cranial nerve in Soemmerring's enumeration; *first trunk* of the eighth in that of Willis.

⁶ Tenth cranial nerve in Soemmerring's enumeration; *second trunk* of the eighth in that of Willis.

⁷ Eleventh cranial nerve in Soemmerring's enumeration; *third trunk* of the eighth in that of Willis.

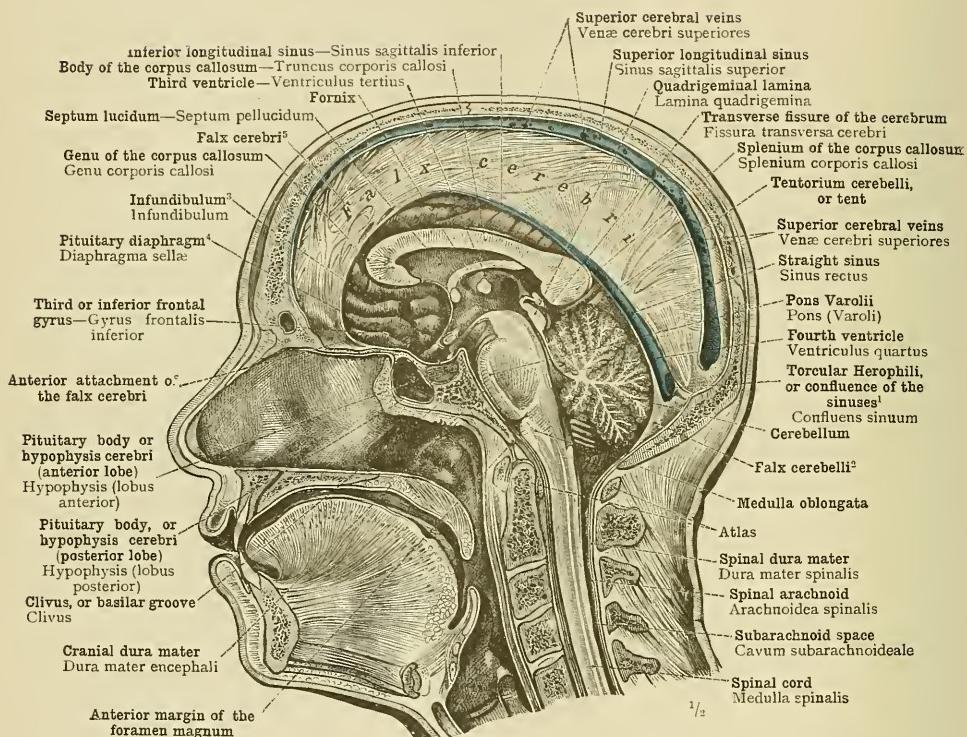
⁸ Twelfth cranial nerve in Soemmerring's enumeration, *ninth* in that of Willis; also called the *lingual motor nerve*.

⁹ See Appendix to Part V., note 292.

¹⁰ See Appendix to Part V., note 221.

¹¹ See Appendix, note 410.

¹² Macalister calls this ligament *ligamentum latum axiale*, the broad axial ligament.



¹ See Appendix to Part V., note 5²⁶.

² By Quain called the operculum or tentorium of the hypophysis. See Appendix, note 411.

³ See Appendix, note 3⁶.

⁴ Sometimes called the falk major.

FIG. 1239.—SAGITTAL SECTION THROUGH THE HEAD, TO THE LEFT OF, BUT CLOSE TO, THE MEDIAN PLANE. RELATIONS OF THE FALK CEREBRI TO THE CORPUS CALLOSUM OR GREAT COMMISSURE AND TO THE INNER OR MESIAL SURFACE OF THE CEREBRAL HEMISPHERES. THE MUTUAL RELATIONS OF THE PONS VAROLII, THE MEDULLA OBLONGATA, THE CEREBELLUM, AND THE THIRD AND FOURTH VENTRICLES; AND, FURTHER, THE RELATION OF THE VARIOUS PARTS JUST ENUMERATED TO THE ROOF OF THE SKULL IN THE MEDIAN PLANE.

SYSTEMA NERVORUM
PERIPHERICUM

THE
PERIPHERAL NERVOUS SYSTEM

NERVI SPINALES

SPINAL NERVES

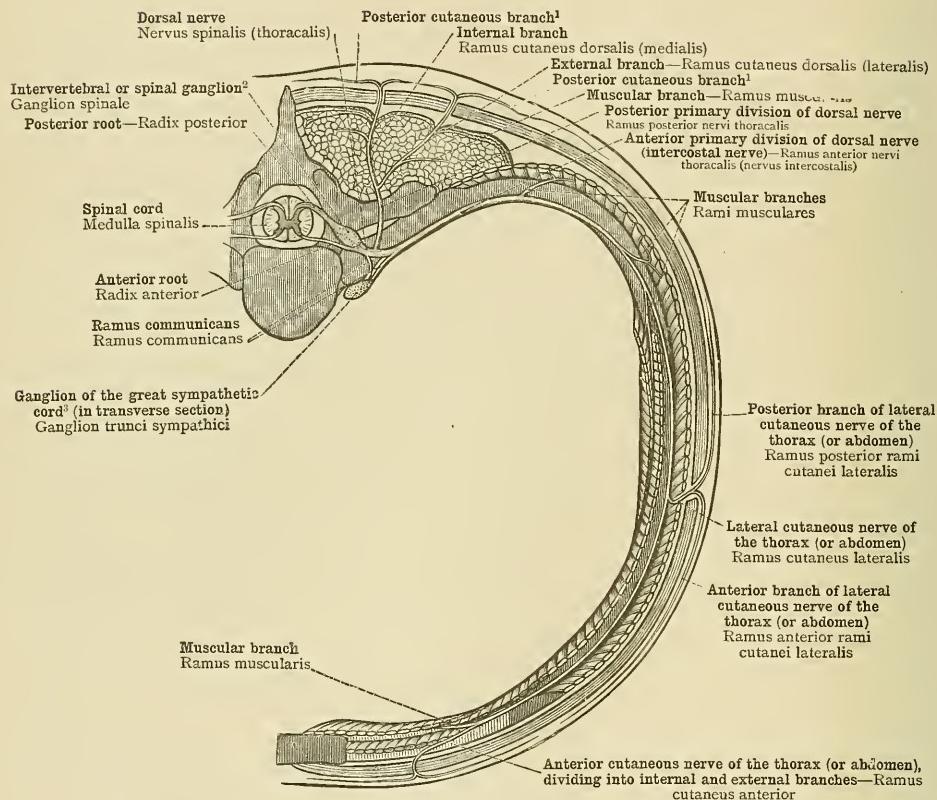
¹ See Appendix, note 413.² Also called the *ganglion of the posterior root*.³ Called by Gaskell *vertebral* or *lateral ganglion* (*of the sympathetic*).⁴ See Appendix, note 414.

FIG. 1240.—DIAGRAMMATIC REPRESENTATION OF THE DISTRIBUTION OF A DORSAL NERVE, NERVUS THORACALIS, IN A SEGMENT OF THE TRUNK. ANTERIOR PRIMARY DIVISION, RAMUS ANTERIOR (OR INTERCOSTAL NERVE—see Appendix, note 414)—NERVUS INTERCOSTALIS, AND POSTERIOR PRIMARY DIVISION, RAMUS POSTERIOR. CONNEXION OF THE ANTERIOR PRIMARY DIVISION WITH THE GREAT GANGLIATED CORD OF THE SYMPATHETIC SYSTEM BY MEANS OF THE RAMUS COMMUNICANS.

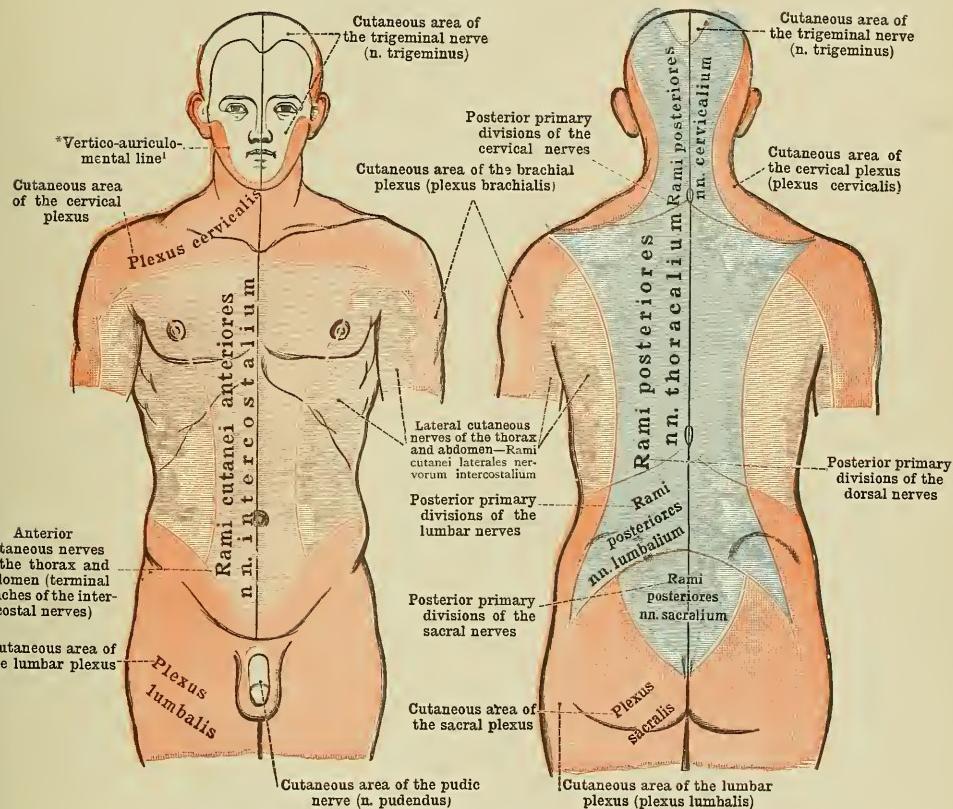


FIG. 1241.—THE CUTANEOUS AREAS OF THE NERVES OF THE TRUNK ON THE ANTERIOR SURFACE OF THE BODY.

The cutaneous areas of the anterior primary divisions of the spinal nerves are tinted red; the cutaneous areas of the posterior primary divisions are tinted blue.

¹ *Vertico-auriculo-mental Line.—“The area of distribution of the spinal nerves . . . embraces . . . the whole of the skin, with the exception of the skin of the face, the forehead, and the vertex; the upper boundary of this area being a line which extends from the vertex over the auricle through the external auditory meatus, thence curves with a forward convexity over the parotidomasseteric region, and descends obliquely to the chin” (Von Langer and Toldt, *op. cit.*, p. 570). “The cutaneous area of the trigeminal nerve is bounded by the above-described *vertico-auriculo-mental line* (*Scheitell-Ohr-Kinnlinie*), which is the upper limit of the cutaneous area of the spinal nerves” (*Ibid.*, pp. 696, 697).

FIG. 1242.—THE CUTANEOUS AREAS OF THE NERVES OF THE TRUNK ON THE POSTERIOR SURFACE OF THE BODY.

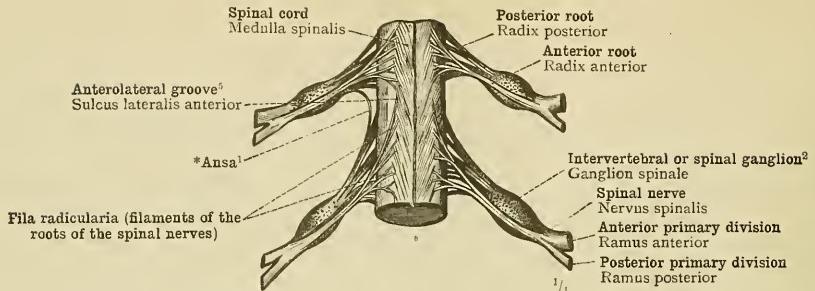


FIG. 1243.—THE UNION OF THE ANTERIOR AND POSTERIOR ROOTS OF THE SPINAL NERVES TO FORM THE MIXED TRUNKS OF THE SPINAL NERVES, NERVI SPINALES. THE INTERVERTEBRAL OR SPINAL GANGLIA (OR GANGLIA OF THE POSTERIOR ROOTS), GANGLIA SPINALIA.

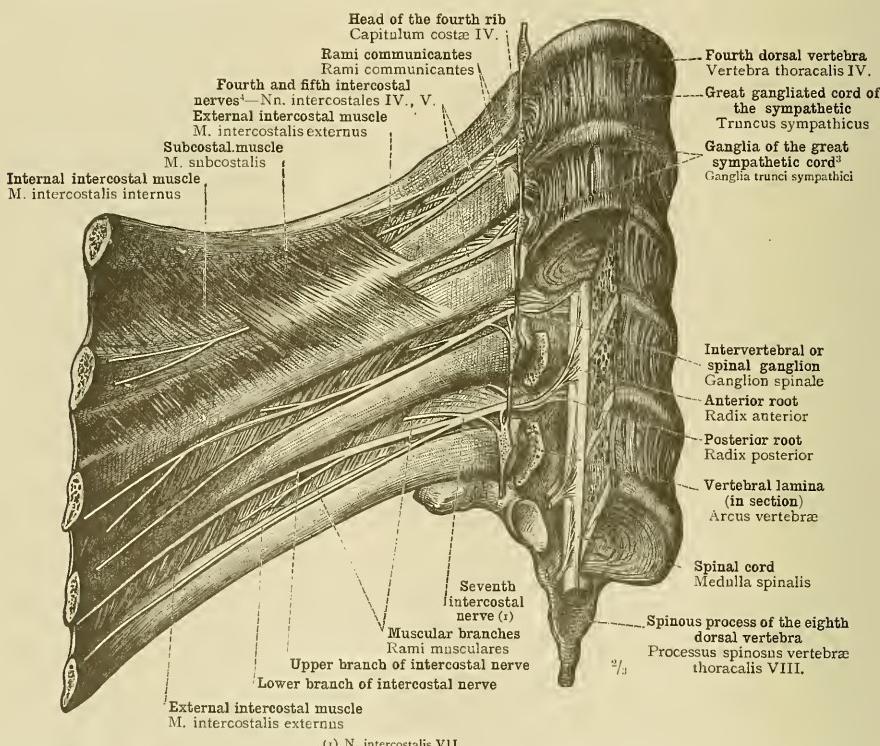


FIG. 1244.—COURSE AND RAMIFICATION OF THE ANTERIOR PRIMARY DIVISIONS OF THE DORSAL NERVES, NERVI THORACALES, CONSTITUTING THE INTERCOSTAL NERVES, NERVI INTERCOSTALES, AND THEIR CONNECTION WITH THE GREAT GANGLIATED CORD OF THE SYMPATHETIC, TRUNCUS SYMPATHICUS, AS SEEN FROM THE INTERIOR OF THIS TRUNK.

In the sixth, seventh, and eighth dorsal vertebrae, the right half of the vertebral body has been cut away; and in the sixth and seventh intercostal spaces the internal intercostal muscle has been removed.

¹ See Appendix, note 415.

² Also called the *ganlion of the posterior root*.

³ Called by Gaskell *vertebral or lateral ganglia (of the sympathetic)*.

⁴ See Appendix, note 414.

⁵ See Appendix, note 315.

Nerves of the Trunk.—*Nervi intercostales*—The intercostal nerves (see Appendix, note 414).

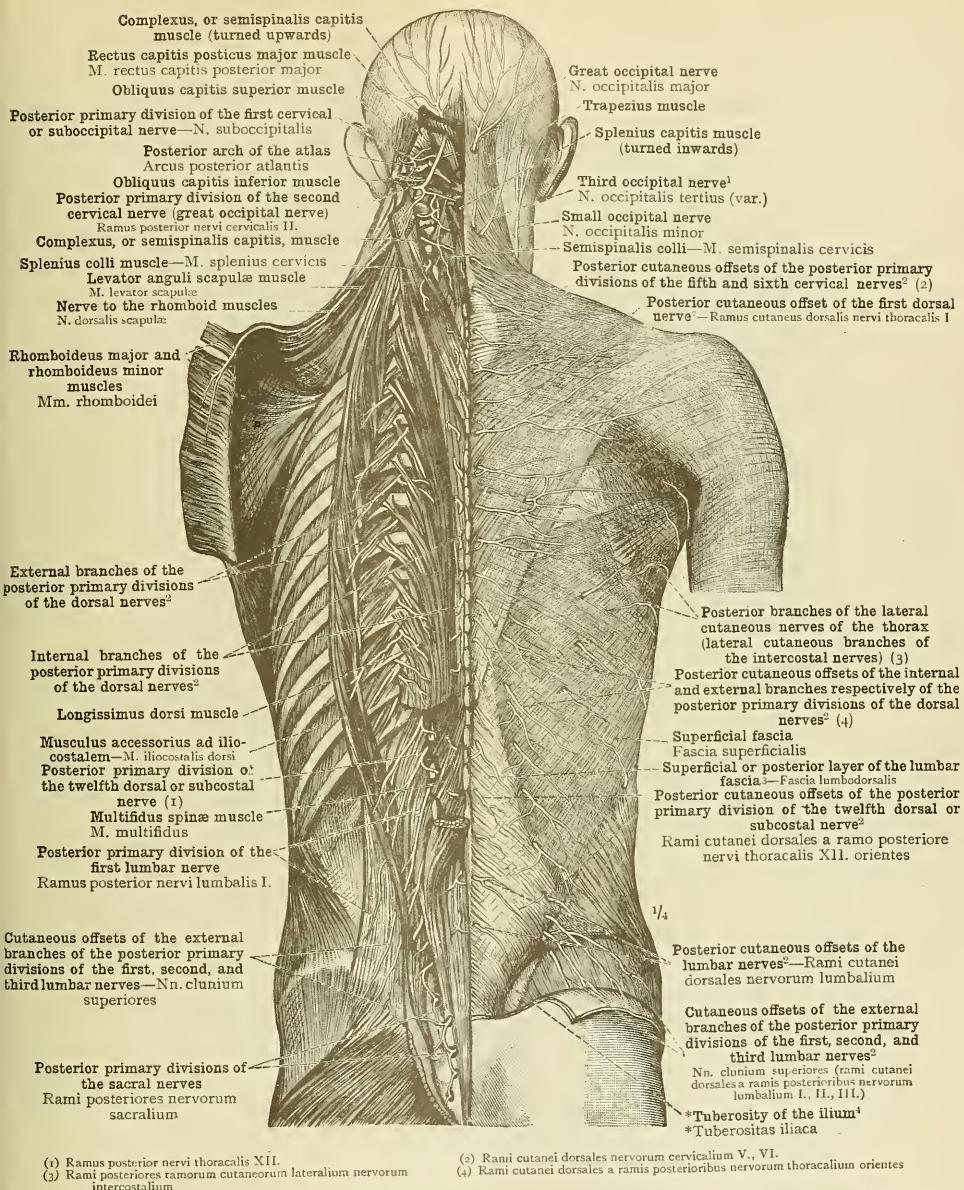


FIG. 1245.—THE DISTRIBUTION OF THE POSTERIOR PRIMARY DIVISIONS, RAMI POSTERIORES, OF THE SPINAL NERVES, NERVI SPINALES. ON THE RIGHT SIDE OF THE BODY THE CUTANEOUS OFFSETS, ON THE LEFT SIDE THE MUSCULAR OFFSETS, ARE SHOWN; AND ON THE LEFT SIDE ALSO, IN PART, THE COURSE OF THE TRUNKS OF THE POSTERIOR PRIMARY DIVISIONS.

¹ See Appendix, note 416.
² See Appendix, note 415.
³ For an account of the nomenclature of the different portions of the lumbar fascia, see footnotes to pp. 267 and 285, in Part III.
⁴ See footnote to p. 128, in Part I.

Anterior cutaneous (terminal) branch of the first intercostal nerve (first anterior cutaneous nerve of the thorax)—Ramus cutaneus anterior nervi intercostalis I.

Muscular branches of the first intercostal nerve
Rami musculares nervi intercostalis I.

External intercostal muscles
Mm. intercostales externi

Internal intercostal muscle
M. intercostalis internus

Endothoracic fascia
Fascia endothoracica

Fourth intercostal nerve
N. intercostalis IV.

Endothoracic fascia
Fascia endothoracica

Seventh intercostal nerve
N. intercostalis VII.

Muscular branch
Ramus muscularis

External oblique
muscle of the abdomen
M. obliquus externus
abdominis

Internal oblique
muscle of the abdomen
M. obliquus internus
abdominis

Transversalis abdominis
muscle
M. transversus abdominis
Twelfth intercostal nerve
N. intercostalis XII.

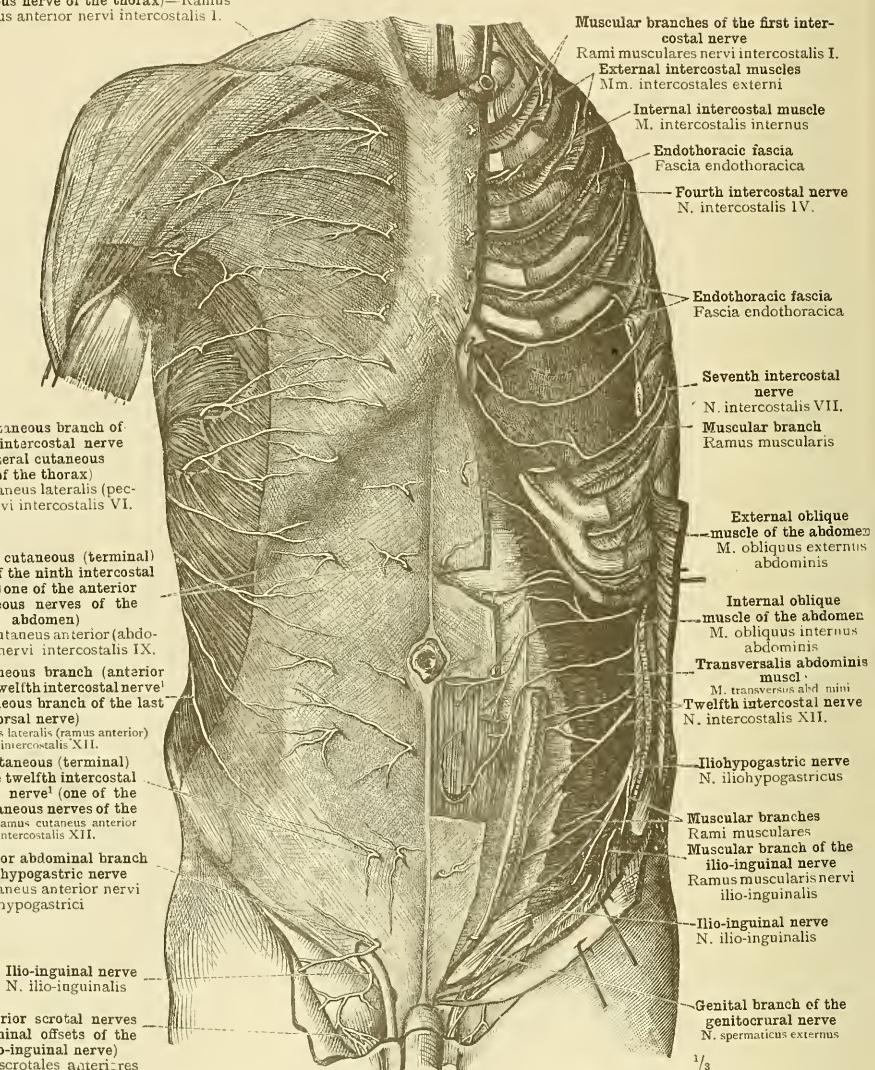
Iliohypogastric nerve
N. iliohypogastricus

Muscular branches
Rami musculares
Muscular branch of the
ilio-inguinal nerve
Ramus muscularis nervi
ilio-inguinalis

Ilio-inguinal nerve
N. ilio-inguinalis

Genital branch of the
genitocrural nerve
N. spermaticus externus

1/3

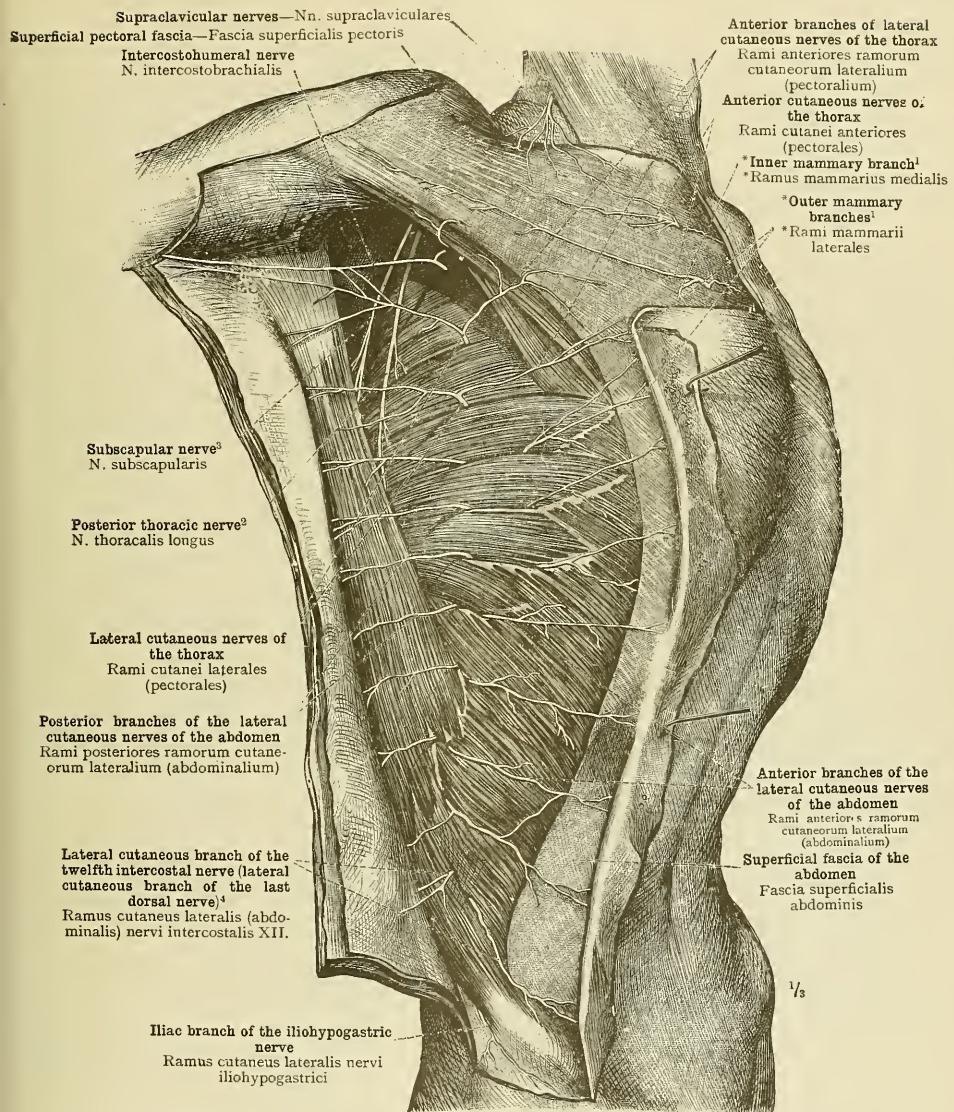


¹ The twelfth intercostal nerve is sometimes distinguished as the subcostal nerve.

FIG. 1246.—THE CUTANEOUS NERVES OF THE ANTERIOR SURFACE OF THE TRUNK.

In order to demonstrate the course of the intercostal nerves, the sixth and seventh ribs and the cartilage of the eighth rib were on the left side partially removed; the situation of the removed segments is, however, indicated by dotted lines. The external and internal intercostal muscles, and also the external and internal oblique muscles of the abdomen and the rectus abdominis muscle, were partially removed.

Nerves of the Trunk.—Rami anteriores nervorum intercostalium—Anterior cutaneous nerves of the thorax and abdomen.



¹ See Appendix, note 47.
² See Appendix, note 41B.

³ Formerly known as the *external respiratory nerve of Bell*.
⁴ The *twelfth intercostal nerve* is sometimes distinguished as the *subcostal nerve*.

FIG. 1247.—THE CUTANEOUS NERVES OF THE RIGHT SIDE OF THE TRUNK; THE LATERAL CUTANEOUS NERVES OF THE THORAX AND ABDOMEN (LATERAL CUTANEOUS BRANCHES OF THE INTERCOSTAL NERVES, RAMI CUTANEI LATERALES NERVORUM INTERCOSTALIUM). INTERCOSTOHUMERAL NERVES, A HUMERAL OFFSET ARISING IN THIS SPECIMEN FROM THE LATERAL CUTANEOUS OFFSET, NOT ONLY OF THE SECOND, BUT ALSO OF THE THIRD INTERCOSTAL NERVE.

Nerves of the Trunk.—Rami cutanei laterales nervorum intercostalium—Lateral cutaneous nerves of the thorax and abdomen.

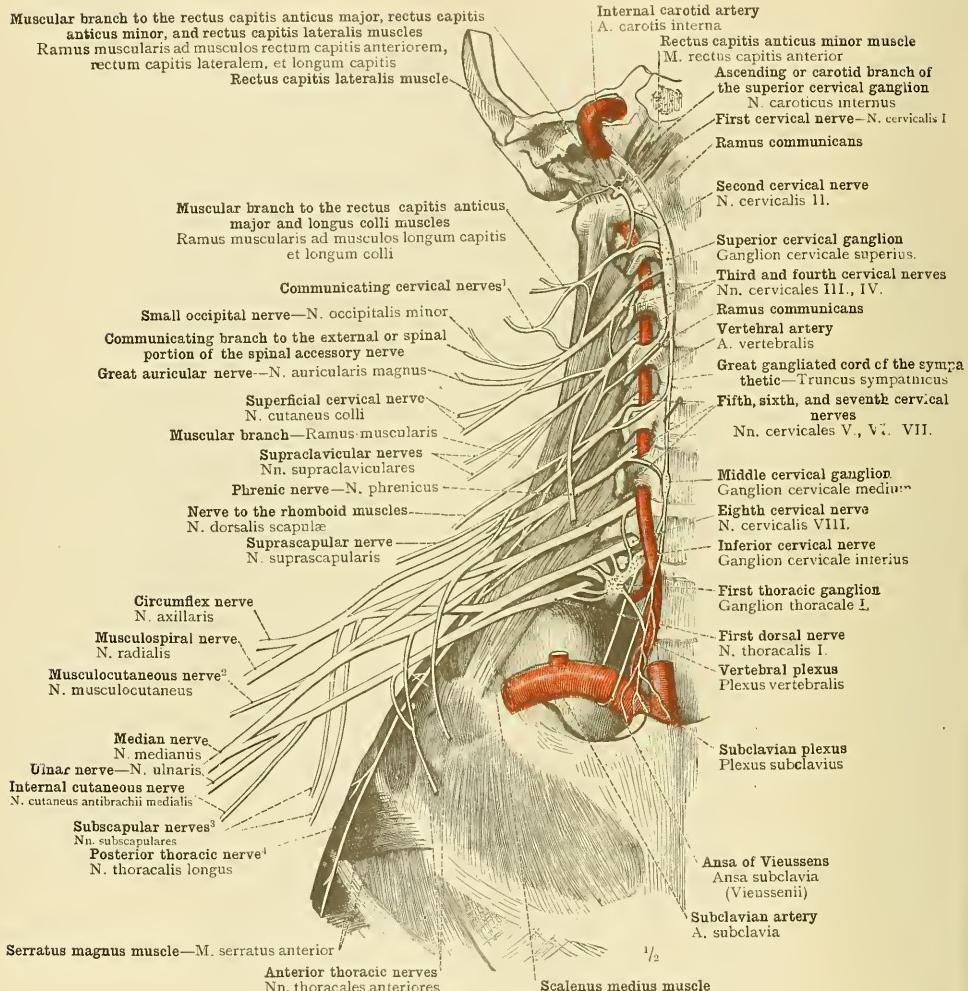
¹ See Appendix, note 4¹⁹.² See Appendix note 4¹⁸.³ Sometimes called the *external cutaneous nerve*.⁴ Formerly known as the *external respiratory nerve of Bell*.

FIG. 1248.—FORMATION OF THE CERVICAL PLEXUS FROM THE ANTERIOR PRIMARY DIVISIONS OF THE FOUR UPPER CERVICAL NERVES, AND THE FORMATION OF THE BRACHIAL PLEXUS FROM THE ANTERIOR PRIMARY DIVISIONS OF THE FOUR LOWER CERVICAL NERVES AND THE FIRST DORSAL NERVE. THE NAMED NERVES ARISING FROM THE CERVICAL PLEXUS AND THE BRACHIAL PLEXUS. THE COMMUNICATIONS BETWEEN THE CERVICAL NERVES AND THE GANGLIA OF THE GREAT SYMPATHETIC CORD.

Plexus cervicalis—Cervical plexus.—Plexus brachialis—Brachial plexus.

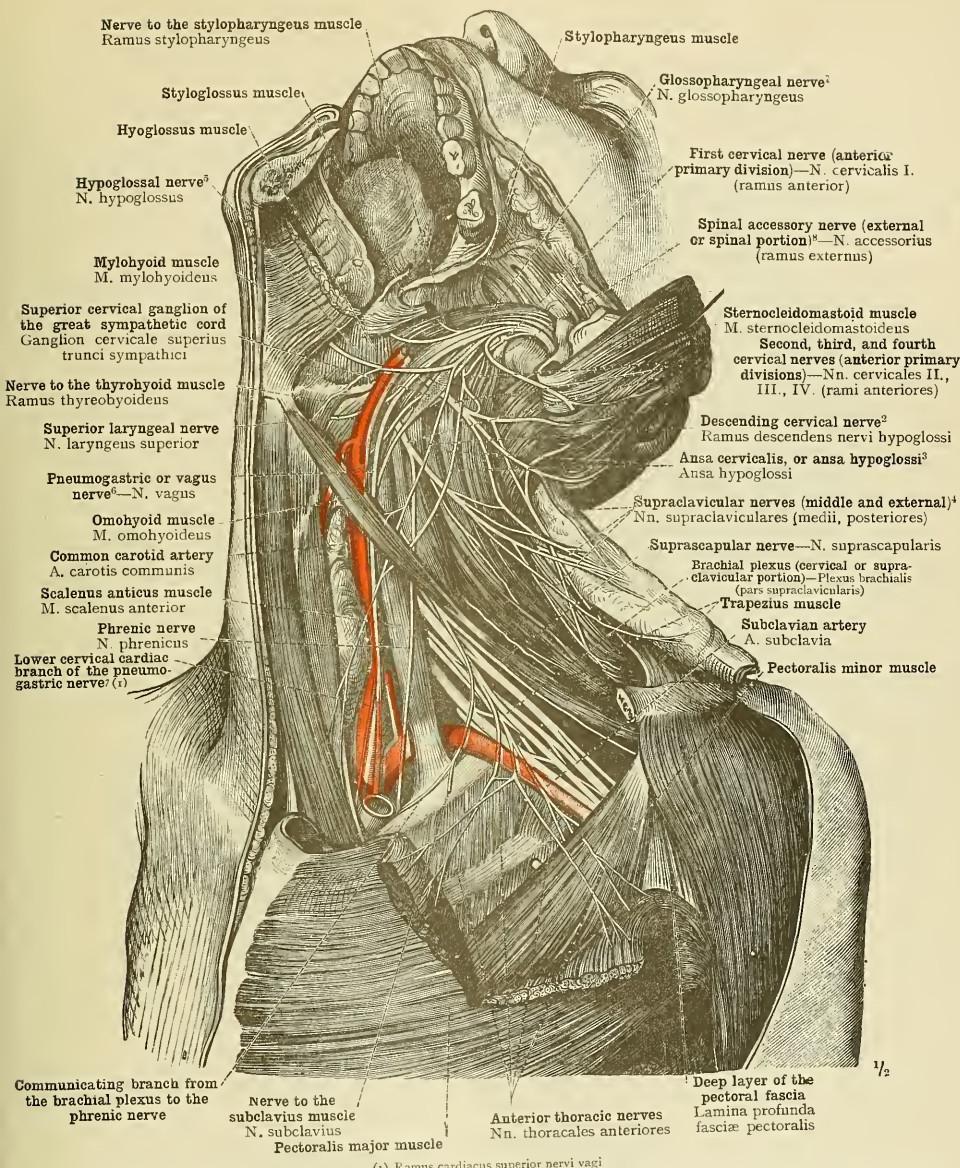


FIG. 1249.—THE DEEP NERVES OF THE NECK, DISPLAYED BY THE REMOVAL OF THE STERNOCLEIDOMASTOID MUSCLE. BY THE PARTIAL REMOVAL OF THE CLAVICLE THE BRACHIAL PLEXUS HAS ALSO BEEN EXPOSED.

¹ Ninth cranial nerve in Soemmering's enumeration; first trunk of the eighth cranial nerve in that of Willis.
² See Appendix, note 420.

³ See Appendix, note 421.

⁴ Supracleavicular Nerves.—These are arranged in three groups: internal or suprasternal; middle or supracleavicular (proper); and external or supra-acromial, also called posterior branches.

⁵ Twelfth cranial nerve in Soemmering's enumeration; second trunk of the eighth cranial nerve in that of Willis; also known as the lingual motor nerve.

⁶ Tenth cranial nerve in Soemmering's enumeration; second trunk of the eighth cranial nerve in that of Willis.

⁷ See Appendix, note 422.

⁸ Eleventh cranial nerve in Soemmering's enumeration; third trunk of the eighth cranial nerve in that of Willis.

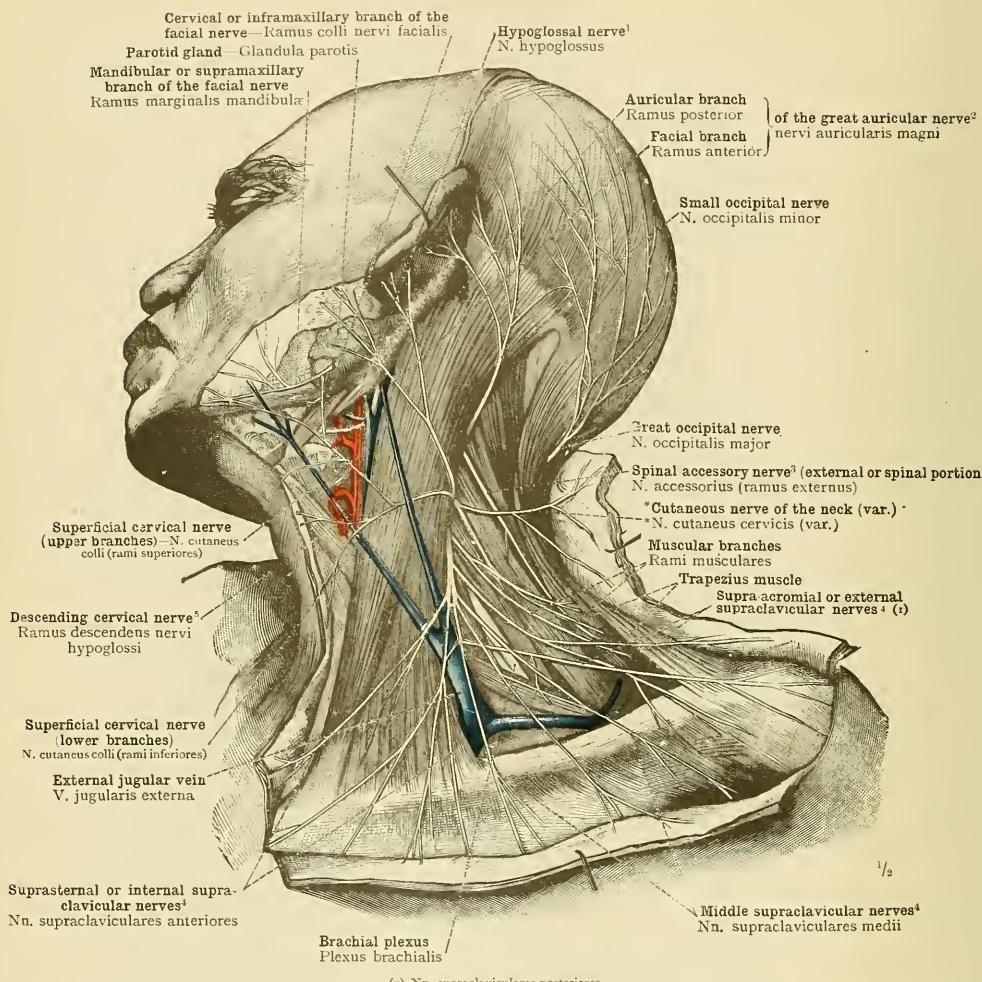


FIG. 1250.—THE CUTANEOUS NERVES OF THE HEAD AND NECK THAT ARE DERIVED FROM THE CERVICAL PLEXUS, AND THE MUSCULAR BRANCHES OF THE SAME PLEXUS THAT SUPPLY THE TRAPEZIUS AND LEVATOR ANGULI SCAPULE MUSCLES. THE EXTERNAL OR SPINAL PORTION OF THE SPINAL ACCESSORY NERVE. THE GREAT OCCIPITAL NERVE, N. OCCIPITALIS MAJOR. THE MANDIBULAR OR SUPRAMAXILLARY BRANCH OF THE FACIAL NERVE, RAMUS MARGINALIS MANDIBULÆ NERVI FACIALIS, AND THE COMMUNICATION BETWEEN THIS NERVE AND THE UPPER BRANCH OF THE SUPERFICIAL CERVICAL NERVE, N. CUTANEUS COLLI.

The nerves are displayed by the removal of the platysma myoïdes and the deep cervical fascia.

¹ Twelfth cranial nerve in Sömmering's enumeration, ninth cranial nerve in that of Willis; also known as the *lingual motor nerve*. See Appendix, note 423.

² Eleventh cranial nerve in Sömmering's enumeration; third trunk of the eighth cranial nerve in that of Willis.

³ See note 4 to p. 817.

⁴ Often called the *descendens noni nerve*. See Appendix, note 420.

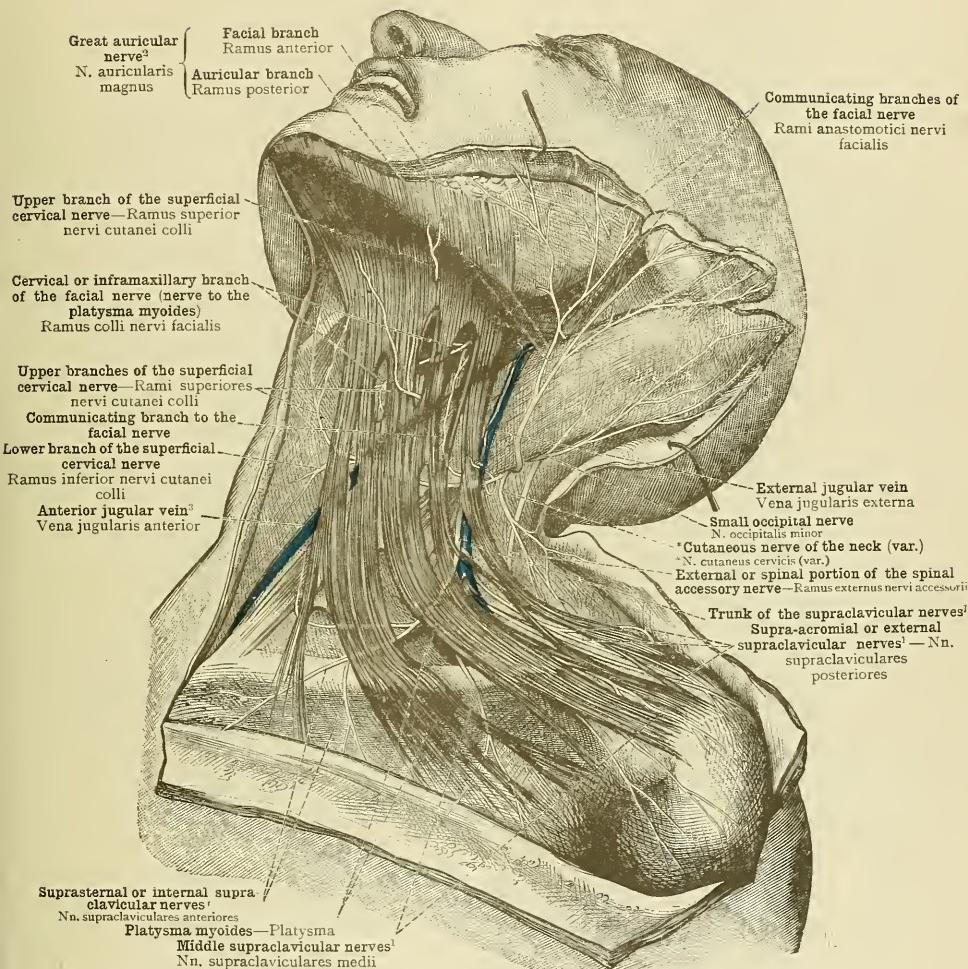
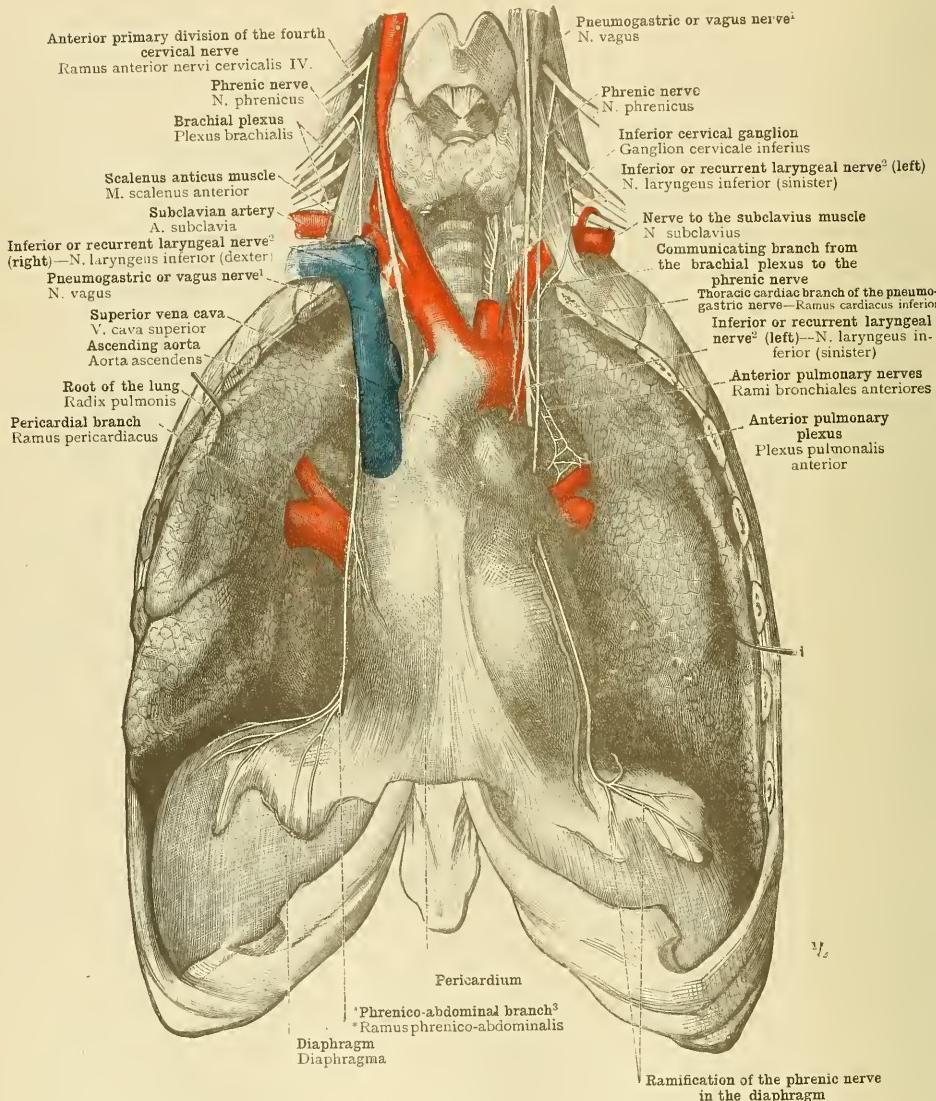
¹ See note 4 to p. 817.² See Appendix, note 423.³ Anterior Jugular Vein.—Macalister used the term *vена mediana colli* as an alternative name for this vein. See Appendix to Part V., note 197.

FIG. 1251.—THE CUTANEOUS NERVES OF THE HEAD AND NECK THAT ARE DERIVED FROM THE CERVICAL PLEXUS, IN RELATION TO THE PLATYSMA MYOIDES. THE FASCICULI OF THE LATTER ARE SEPARATED HERE AND THERE, IN ORDER TO DISPLAY IN THE INTERVALS THUS MADE THE NERVES COVERED BY THE MUSCLE.



² Tercer cranial nerve in Soemmerring's nomenclature; second trunk of the eighth cranial nerve in that of Willis.
³ See note 3 to p. 872.

FIG. 1252.—THE PHRENIC OR DIAPHRAGMATIC NERVE, NERVUS PHRENICUS, AND ITS RELATIONS WITH THE VAGUS NERVE.

In the thoracic region, the phrenic nerves were exposed by drawing apart the anterior borders of the lungs, and their course along the side of the pericardium was displayed by an incision through the pericardial pleura.

Nervus phrenicus—The phrenic nerve.

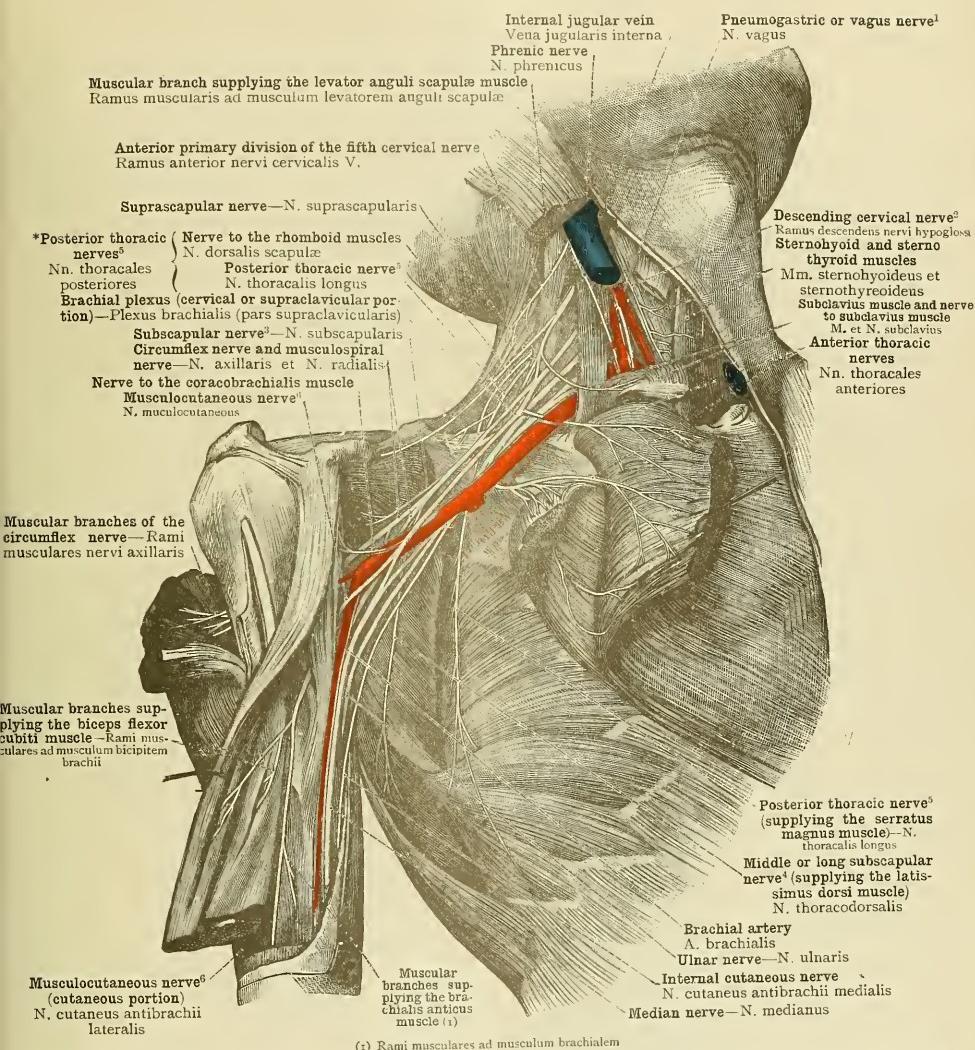


FIG. 1253.—THE NERVES DERIVED FROM THE BRACHIAL PLEXUS FOR THE SUPPLY OF THE MUSCLES OF THE SHOULDER-JOINT, THE MUSCLES CONNECTING THE ARM WITH THE TRUNK, AND THE MUSCLES OF THE SHOULDER-GIRDLE. THE MOTOR OFFSETS OF THE MUSCULOCUTANEOUS (OR EXTERNAL CUTANEOUS) NERVE.

The pectoralis major and pectoralis minor muscles were cut across near their distal extremities and turned inwards; the muscles attached to the clavicle were also detached from that bone and turned aside; the deltoid muscle was divided and turned downwards; the biceps divided and turned outwards. The sternoclavicular and acromioclavicular articulations were cut through and the clavicle was removed.

¹ *Tenth cranial nerve* in Soemmerring's enumeration; *second trunk* of the *eighth cranial nerve* in that of Willis.

² Often called the *descendens noni nerve*. See Appendix, note 420.

³ See Appendix, note 418.

⁴ See Appendix, note 423.

³ See Appendix, note 415.

⁴ Sometimes called the *external cutaneous nerve*.

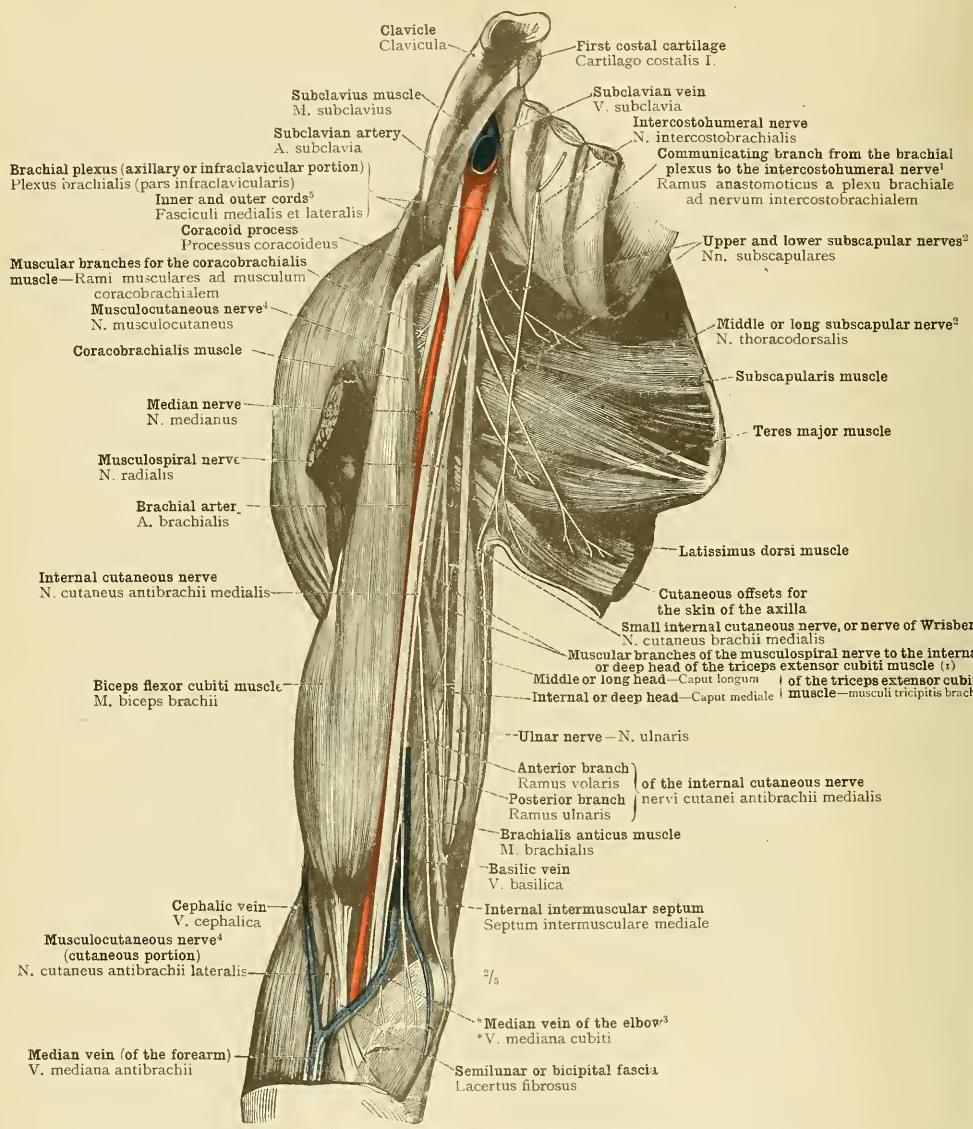
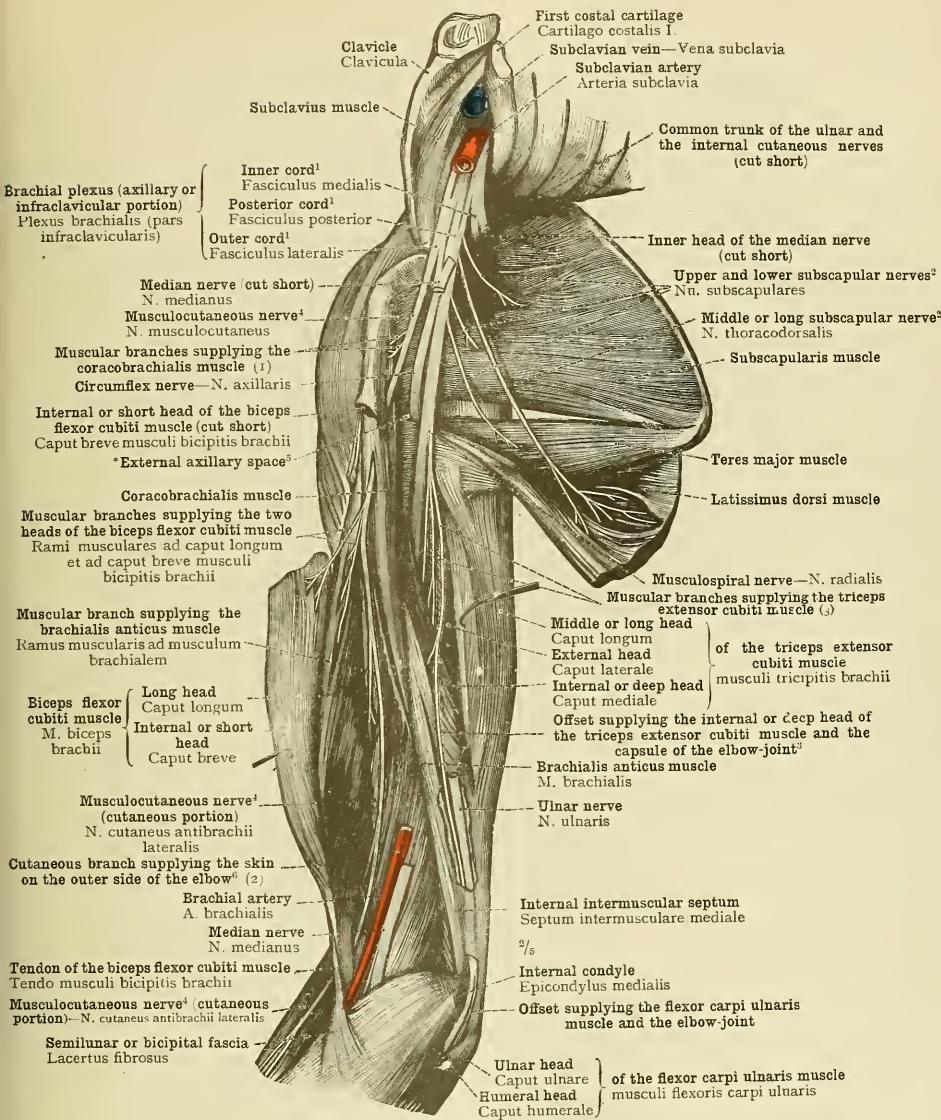


FIG. 1254.—THE DEEP NERVES OF THE SHOULDER AND THE UPPER ARM, SEEN FROM BEFORE AND THE INNER SIDE.

¹ The communication between the brachial plexus and the intercostohumeral nerve is usually effected by means of a branch of the small internal cutaneous nerve (nerve of Wrisberg).
² See Appendix to Part V., note 438.
³ See Appendix to Part V., note 393.

⁴ Sometimes called the external cutaneous nerve.

⁵ See Appendix, note 426.



(1) Rami musculares ad musculum coracobrachiale.

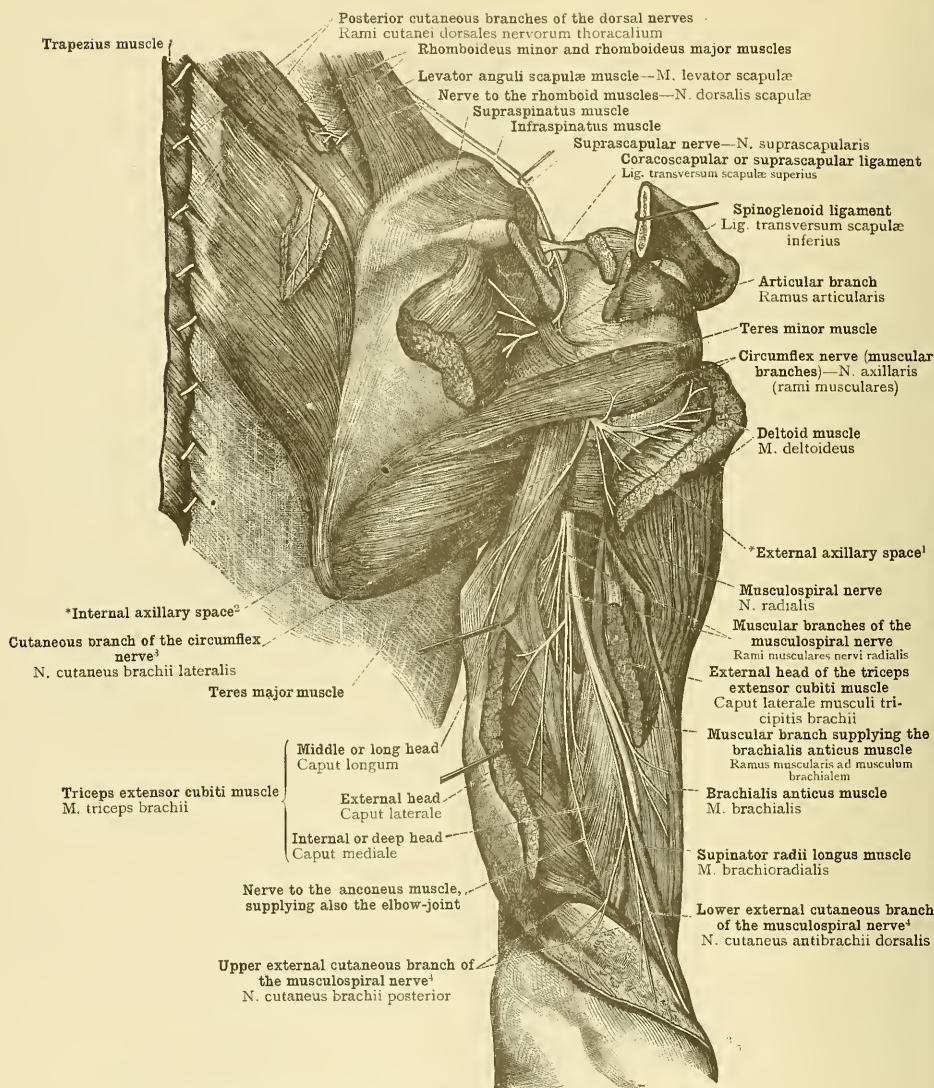
(2) Rami cutanei (nervi cutanei antibrachii lateralis).

(3) Rami musculares ad musculum tricipitum brachii.

See Appendix, note 4²⁶.See Appendix, note 4¹⁸.See Appendix, note 4²⁷.Sometimes called the *external cutaneous nerve*.See Appendix, note 4²⁸.5 Called by Macalister the *quadrilateral space*. See note 1 to p. 312, in Part III.See Appendix, note 4²⁹.

FIG. 1255.—THE DEEP NERVES OF THE SHOULDER AND THE UPPER ARM, SEEN FROM BEFORE AND THE INNER SIDE, AFTER REMOVING THE ULNAR AND MEDIAN NERVES.

The upper part of the internal or short head of the biceps flexor cubiti muscle was removed, while the lower part of the muscle was turned outwards, in order to display the nerves entering the biceps flexor cubiti and brachialis anticus muscles.



¹ Called by Macalister the *quadrilateral space*. See note ² to p. 312, in Part III.

² Called by Macalister the *subscapular triangle*. See note ¹ to p. 312, in Part III.

³ Sometimes called the *lower branch of the circumflex nerve*, but the name used in the text is more distinctive.

⁴ See Appendix, note 429.

FIG. 1256.—THE NERVES SUPPLYING THE MUSCLES OF THE SHOULDER-JOINT AND THE TRICEPS EXTENSOR CUBITI MUSCLE, ALSO THE CUTANEOUS OFFSETS OF THE CIRCUMFLEX AND MUSCULOSPINAL NERVES, DISPLAYED FROM BEHIND. THE RAMIFICATION OF THE NERVE TO THE RHOMBOID MUSCLES (N. DORSALIS SCAPULÆ).

The spine of the scapula was sawn across, the detached segment was drawn outward, and the supraspinatus and infraspinatus muscles were cut across. The external head of the triceps extensor cubiti muscle was divided by an oblique section, and the segments were drawn apart,

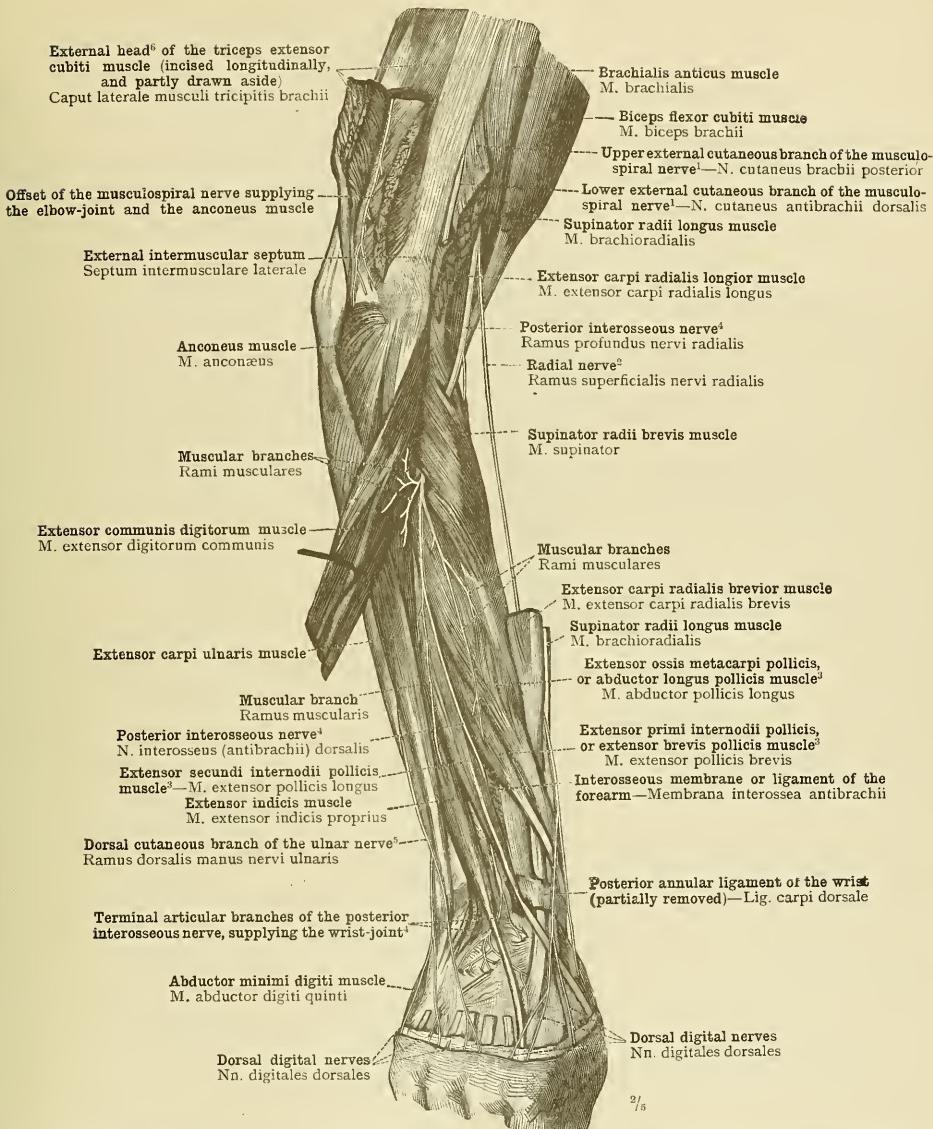


FIG. 1257.—THE DEEP NERVES OF THE DORSAL SIDE OF THE FOREARM. THE NERVE TO THE ANCONEUS MUSCLE (A BRANCH OF THE MUSCULOSPIRAL NERVE) AND THE BRANCHES OF THIS NERVE TO THE ELBOW-JOINT WERE EXPOSED BY AN INCISION INTO THE EXTERNAL HEAD⁶ OF THE TRICEPS EXTENSOR CUBITI MUSCLE.

¹ See Appendix, note 43².

² See Appendix, note 43².

³ See note ¹ to p. 326, in Part III.

⁴ See Appendix, note 43¹.

⁵ Also called *dorsal branch of the ulnar nerve* and *dorsal cutaneous nerve of the hand*, but both these names are less distinctive than that used in the text, which is employed by Macalister.

⁶ See Appendix, note 43².

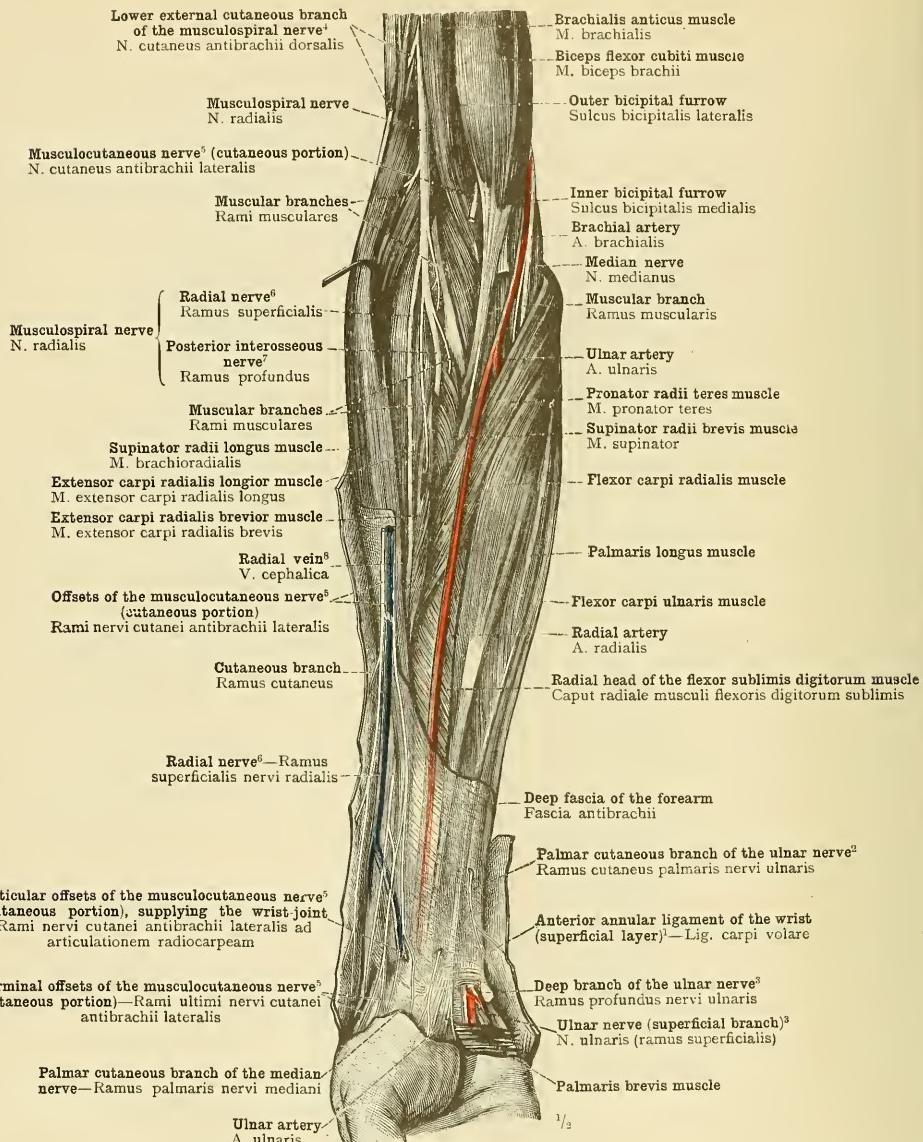


FIG. 1258.—THE DEEP NERVES OF THE PALMAR SIDE OF THE FOREARM, MORE ESPECIALLY THE COURSE AND DISTRIBUTION OF THE MUSCULOSPIRAL NERVE, DISPLAYED BY THE REMOVAL OF THE DEEP FASCIA OF THE FOREARM.

¹ See Appendix to Part V., note 214.

² In Ellis's "Demonstrations of Anatomy" this branch is called the *cutaneous nerve of the forearm and hand*—a name greatly lacking in precision.

³ See Appendix, note 433.

⁴ See Appendix, note 439.

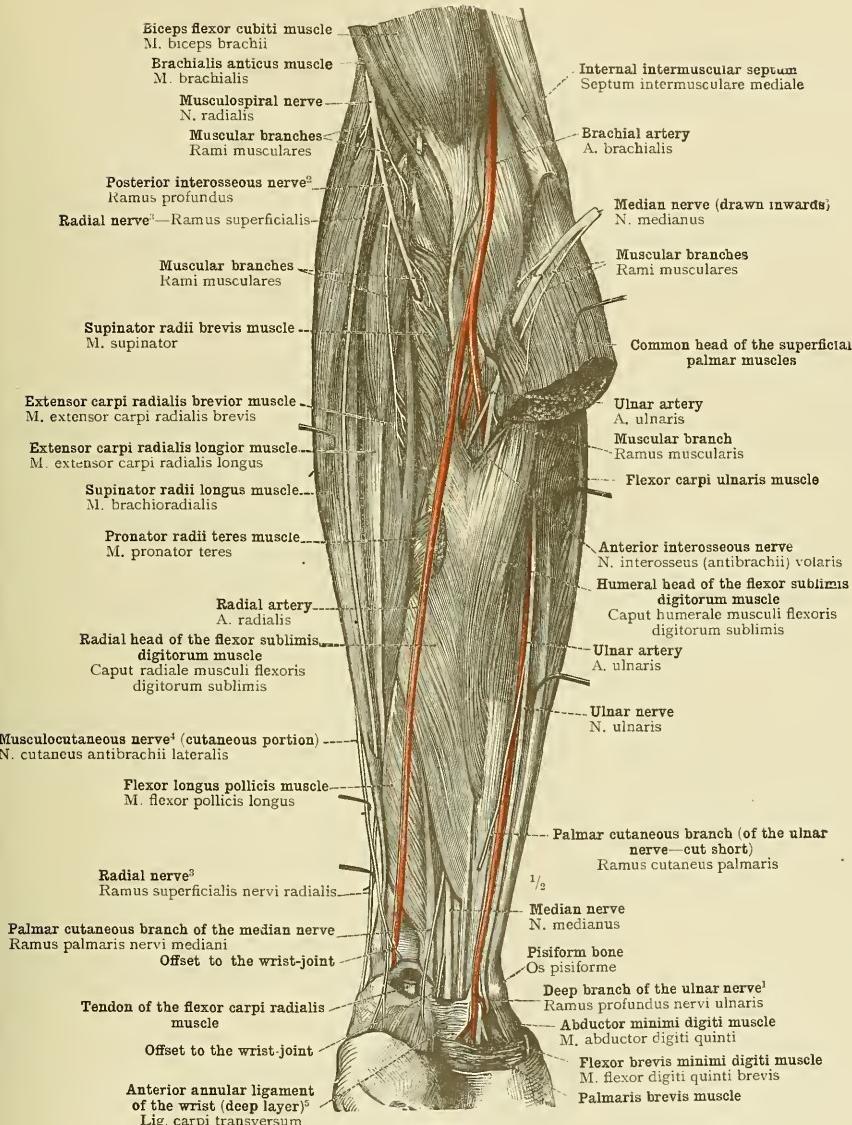
⁵ See Appendix, note 431.

⁶ Called by Macalister the *superficial radial vein*. With regard to the author's use of the term *vena cephalica*, see Appendix to Part V., note 305.

⁷ See Appendix, note 431.

⁸ See Appendix, note 431.

⁹ Sometimes called the *external cutaneous nerve*.



¹ See Appendix, note 433.
² Sometimes called the *external cutaneous nerve*.

³ See Appendix, note 434.

⁴ See Appendix, note 439.
⁵ See Appendix to Part V., note 314.

FIG. 1259.—THE DEEP NERVES OF THE PALMAR SIDE OF THE FOREARM, DISPLAYED BY THE PARTIAL REMOVAL OF THE PRONATOR RADII TERES, FLEXOR CARPI RADIALIS, AND PALMARIS LONGUS MUSCLES. THE PASSAGE OF THE MEDIAN NERVE BETWEEN THE TWO HEADS OF THE PRONATOR RADII TERES MUSCLE.

The muscles of the radial group (supinator and extensor muscles) have been separated a little one from another.

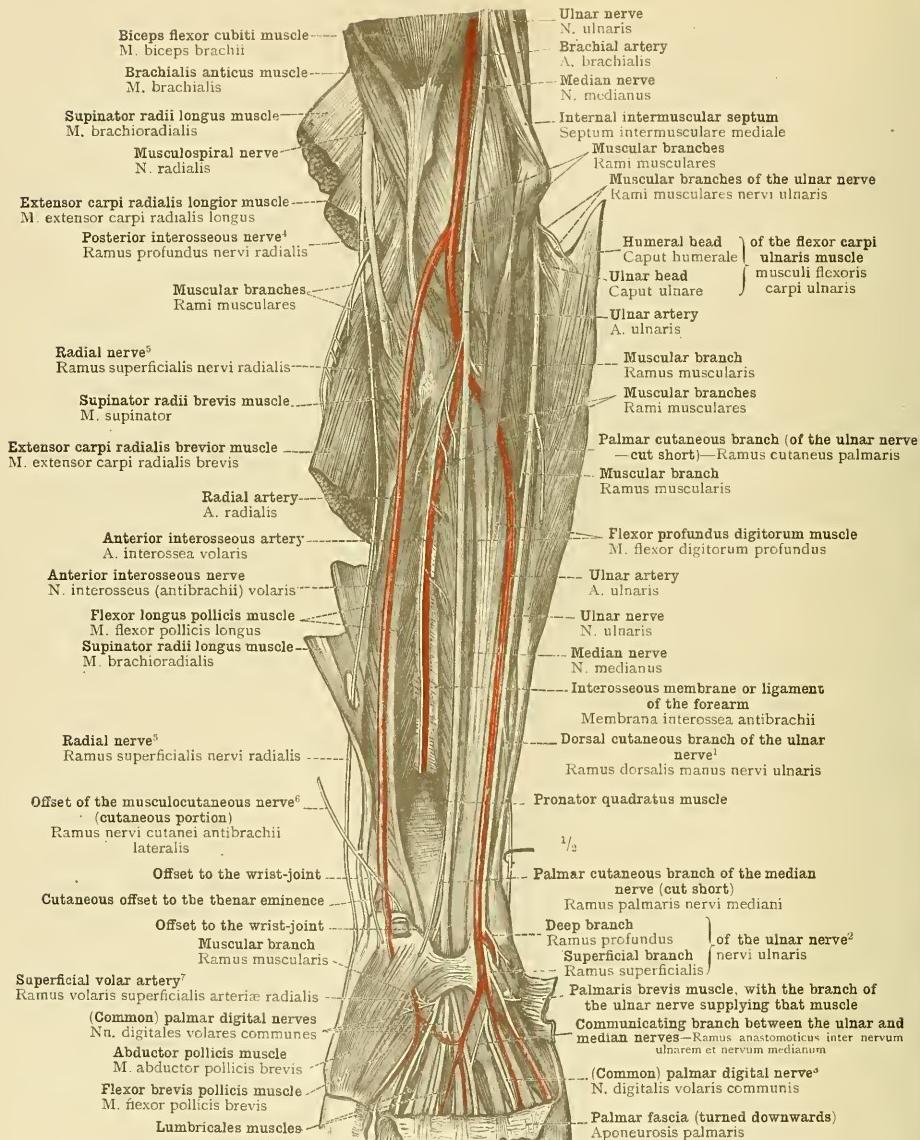
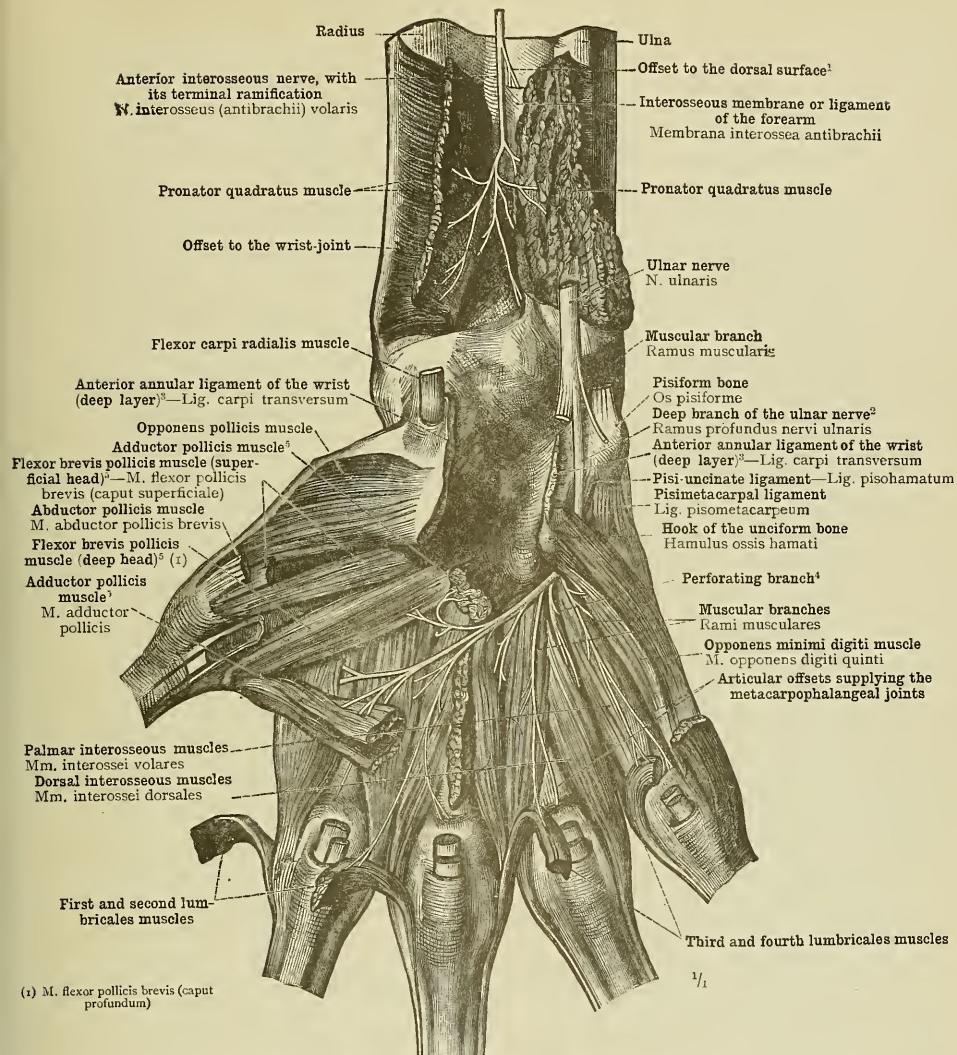
¹ See note 5 to p. 825.² See Appendix, note 433.³ See Appendix, note 434.⁴ See Appendix, note 432.⁵ See Appendix, note 439.⁶ Sometimes called the external cutaneous nerve.⁷ Often known in England by the Latin name of *superficialis vena arteria*.

FIG. 1260.—THE DEEP NERVES OF THE PALMAR SIDE OF THE FOREARM, DISPLAYED BY THE REMOVAL OF THE FLEXOR SUBLIMIS DIGITORUM, SUPINATOR RADII LONGUS, EXTENSOR CARPI RADIALIS LONGIOR, AND EXTENSOR CARPI RADIALIS BREVIOR MUSCLES.

The flexor longus pollicis muscle has been drawn apart from the flexor profundus digitorum muscle.

Nerves of the Forearm.



(1) M. flexor pollicis brevis (caput profundum)

² See Appendix, note 433.

⁴ See Appendix, note 435.

³ See Appendix to Part V., note 214.

⁵ See note ² to p. 324, in Part III.

FIG. 1261.—THE TERMINAL RAMIFICATION OF THE ANTERIOR INTEROSSEOUS NERVE, N. INTEROSSEUS (ANTI-BRACHII) VOLARIS, IN THE SUBSTANCE OF THE PRONATOR QUADRATUS MUSCLE, AND THE ARTICULAR BRANCH OF THIS NERVE TO THE WRIST-JOINT. THE DISTRIBUTION OF THE DEEP BRANCH OF THE ULNAR NERVE (see Appendix, note 433) TO THE MUSCLES OF THE METACARPUS AND TO THE METACARPOPHALANGEAL JOINTS.

The terminal ramification of the anterior interosseous nerve was exposed by making a vertical incision through the middle of the pronator quadratus muscle and drawing the segments apart. To expose the deep branch of the ulnar nerve in the palm of the hand, partial removal of the muscles of the thenar eminence was required.

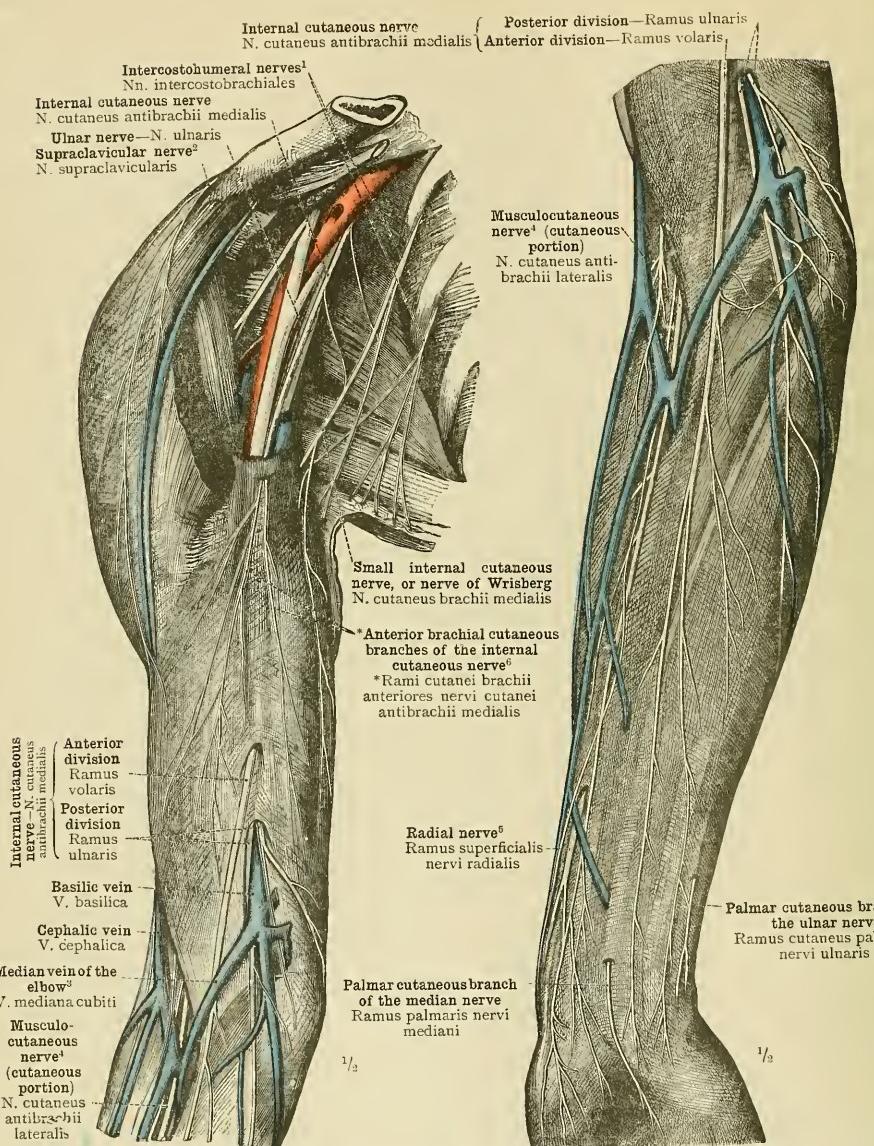


FIG. 1262.—THE CUTANEOUS NERVES OF THE ANTERIOR AND INNER SIDES OF THE UPPER ARM.

¹ See description at the foot of Fig. 1247, p. 815.
² Sometimes called the *external cutaneous nerve*.

FIG. 1263.—THE CUTANEOUS NERVES OF THE PALMAR SURFACE OF THE FOREARM.

³ See note ⁴ to p. 817.
⁵ See Appendix; note 43.

⁶ See Appendix to Part V., note 308.
⁷ See Appendix, note 43.

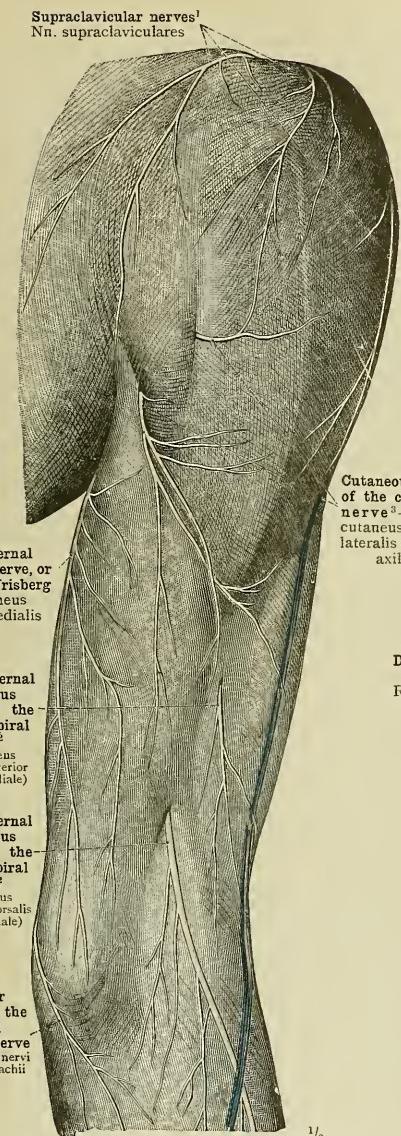


FIG. 1264.—THE CUTANEOUS NERVES OF THE BACK OF THE UPPER ARM.

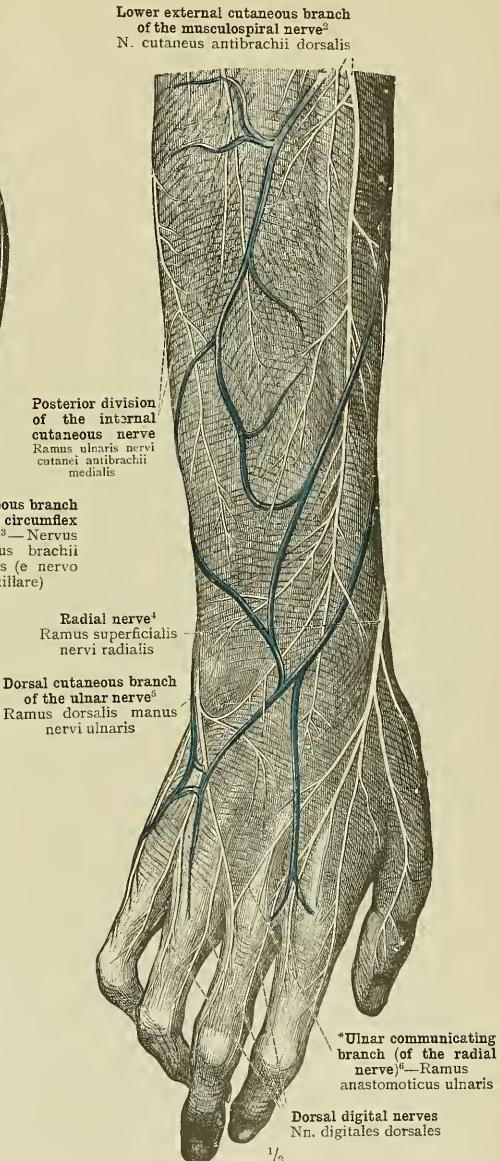


FIG. 1265.—THE CUTANEOUS NERVES OF THE BACK OF THE FOREARM AND HAND.

¹ The hindmost of these nerves is distinguished as the *external* or *posterior* branch of the *supraclavicular nerves*, or as the *supra-acromial nerve*. See note ⁴ to p. 817.

² See Appendix, note 439.

⁴ See Appendix, note 435.

³ Sometimes called the *lower branch of the circumflex nerve*, but the name used in the text is more distinctive. See note 5 to p. 825.

⁶ See Appendix, note 437.

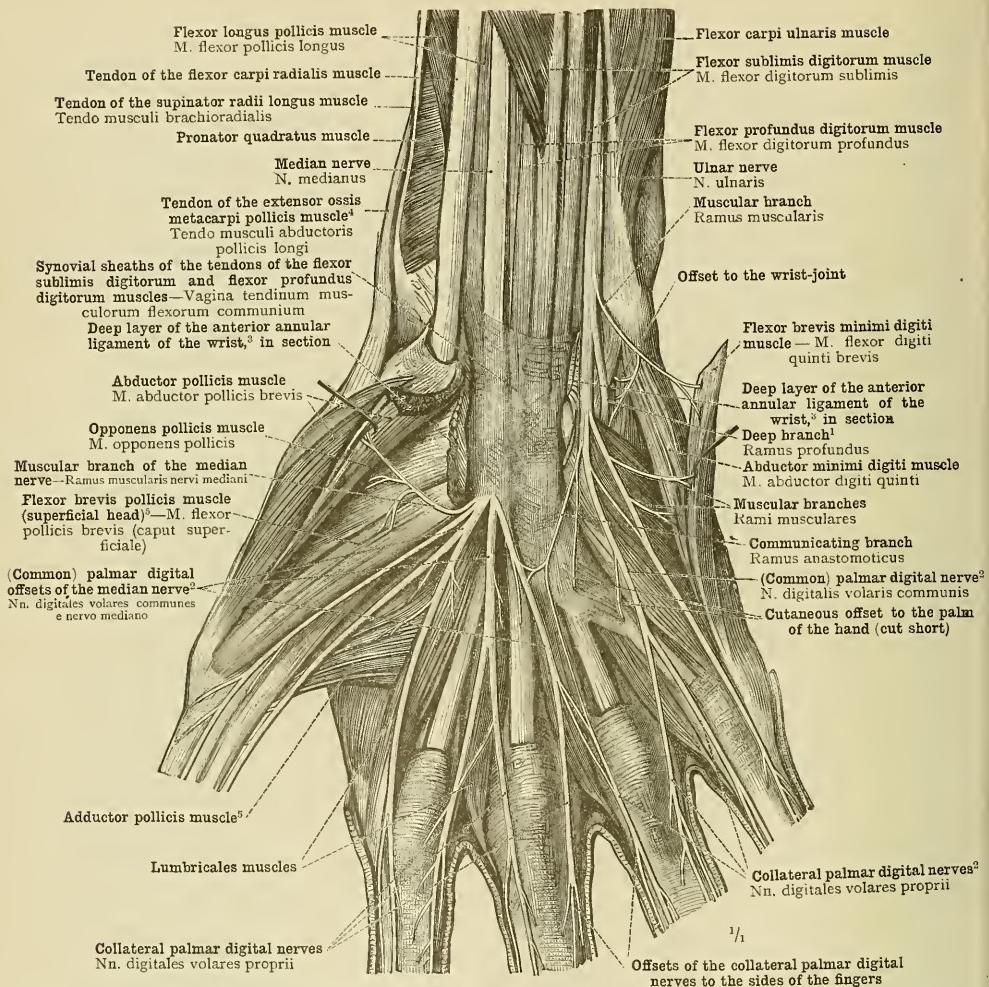


FIG. 1266.—THE DISTRIBUTION OF THE NERVES ON THE PALMAR SURFACE OF THE METACARPUS, DISPLAYED BY THE REMOVAL OF THE DEEP LAYER OF THE ANTERIOR ANNULAR LIGAMENT OF THE WRIST (LIGAMENTUM CARPI TRANSVERSUM—see Appendix to Part V., note ²¹⁴) AND THE PALMAR FASCIA (APONEUROYSIS PALMARIS). THE PASSAGE OF THE MEDIAN NERVE (N. MEDIANUS) THROUGH THE CANAL OF THE CARPUS (CANALIS CARPI), IN WHICH THE NERVE IS IMBEDDED IN THE ANTERIOR WALL OF THE COMMON SYNOVIAL SHEATH OF THE FLEXOR TENDONS. THE PROXIMAL EXTREMITIES OF THE ADDUCTOR POLLICIS AND FLEXOR BREVIS MINIMI DIGITI MUSCLES HAVE BEEN CUT THROUGH, AND THE MUSCLES HAVE BEEN TURNED OUTWARDS AND INWARDS, RESPECTIVELY, IN ORDER TO DISPLAY THE MUSCULAR BRANCHES TO THE MUSCLES OF THE THENAR AND HYPOTHENAR EMINENCES.

* See Appendix, note 433.

¹ See note ⁴ to p. 326, in Part III.

² See Appendix, note 434.

³ See note ² to p. 324, in Part III.

⁴ See Appendix to Part V., note ²¹⁴.

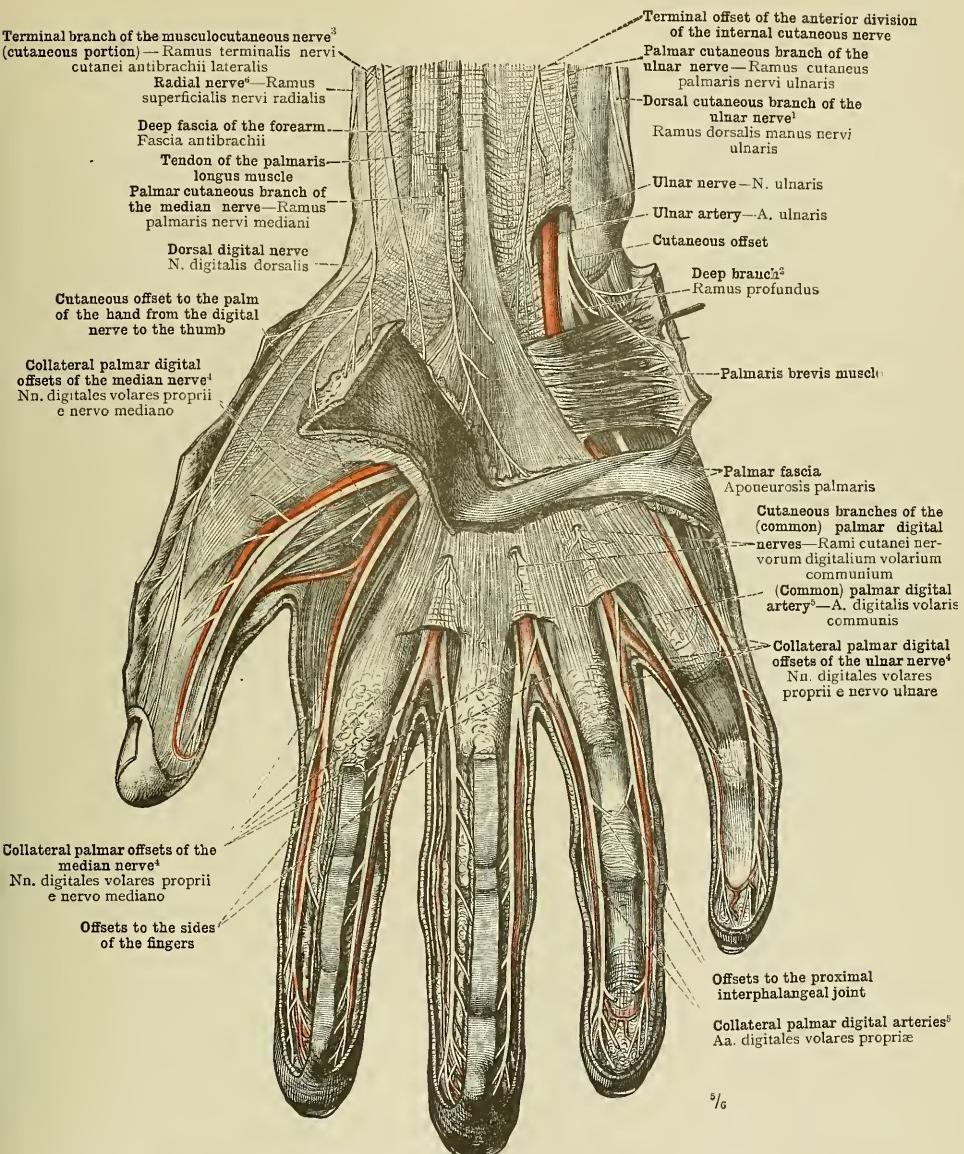


FIG. 1267.—THE SUPERFICIAL NERVES OF THE PALMAR SURFACE OF THE METACARPUS AND THE FINGERS.

³ See note 5 to p. 825.
⁴ See Appendix, note

² See Appendix, note 433.

⁵ See Appendix to Part V., note 213.

³ Sometimes called the *external cutaneous nerve*.

⁶ See Appendix, note 430.

Cutaneous Nerves of the Hand.

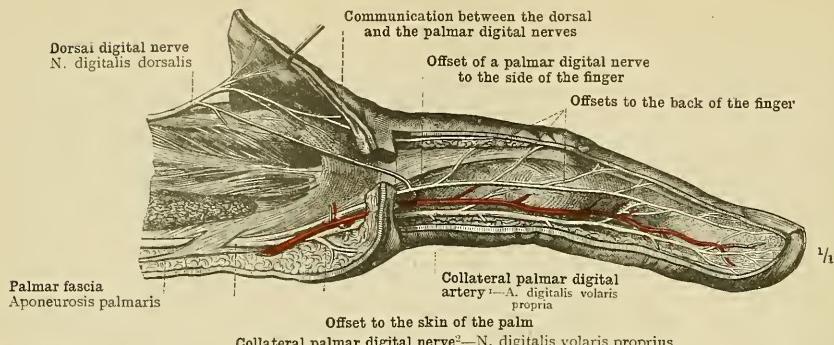
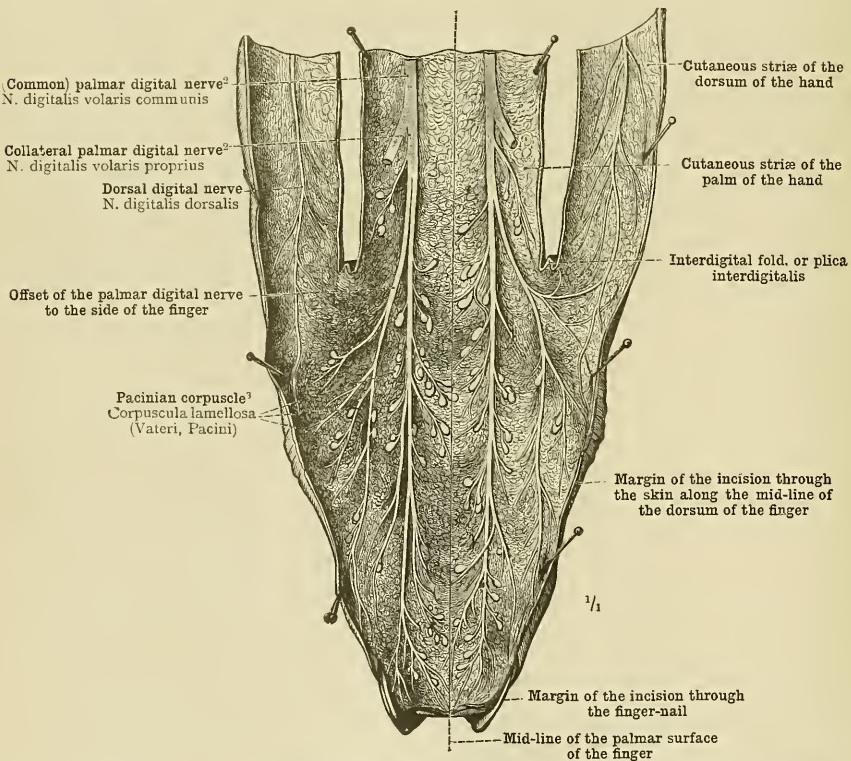


FIG. 1268.—THE PALMAR AND DORSAL NERVES OF THE RIGHT MIDDLE FINGER, SEEN FROM THE ULRNAR SIDE.

FIG. 1269.—THE PALMAR AND DORSAL NERVES OF THE MIDDLE FINGER, AS SEEN IN THE DETACHED SKIN. PACINIAN CORPUSCLES (see note ³ below).¹ See Appendix to Part V., note 213.² See Appendix, note 434.³ Called also *Pacinian body*, and sometimes *corpuscle of Vater*. See Appendix, note 325.

Cutaneous Nerves of the Hand.

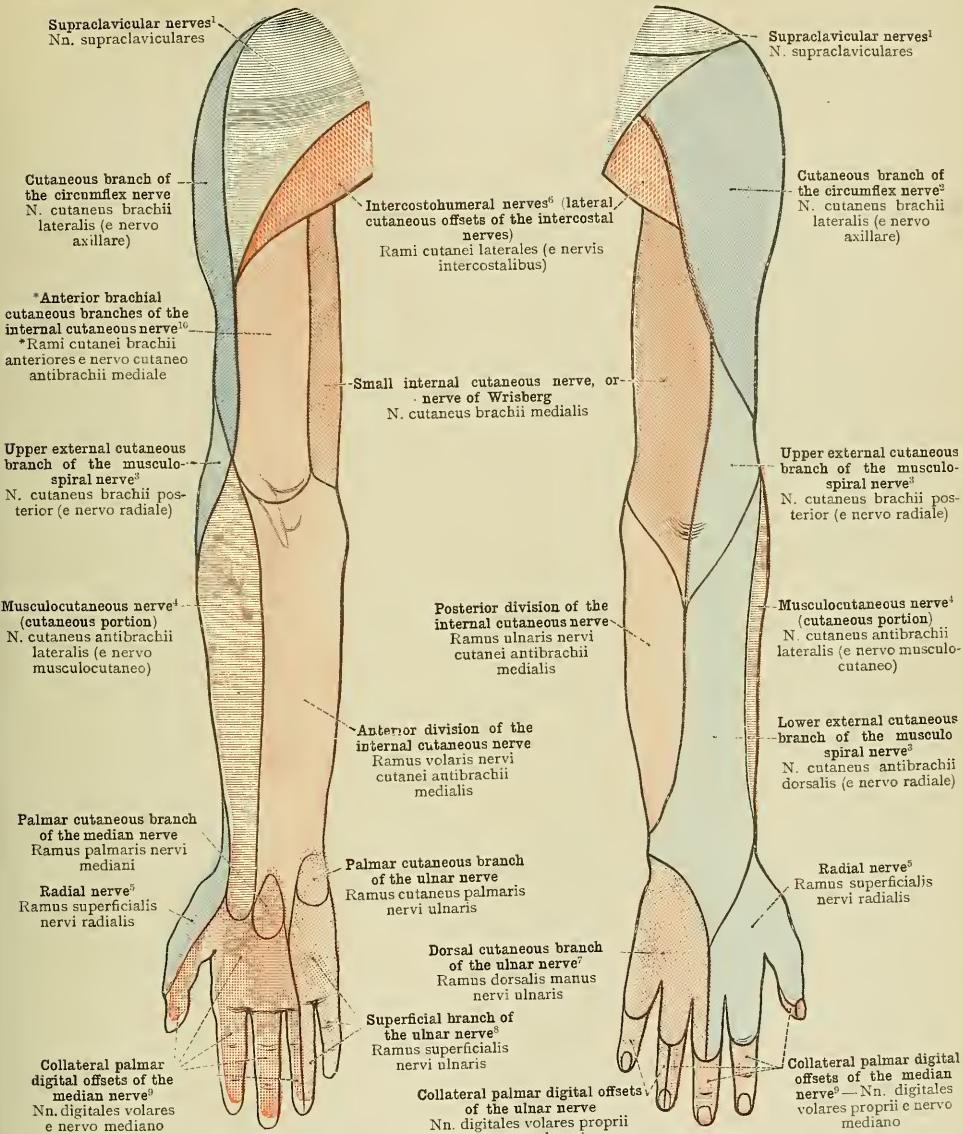


FIG. 1270.—THE CUTANEOUS AREAS OF THE BRACHIAL NERVES ON THE ANTERIOR OR PALMAR SURFACE OF THE UPPER EXTREMITY.

¹ See note 4 to p. 817.
² See Appendix, note 429.
³ See Appendix, note 430.
⁴ See note 5 to p. 825.

⁵ Sometimes called the *lower branch of the circumflex nerve*, but the name used in the text is more distinctive.
⁶ Sometimes called the *external cutaneous nerve*.
⁷ See description at the foot of Fig. 1237, p. 815.
⁸ See Appendix, note 433.
⁹ See Appendix, note 434.
¹⁰ See Appendix, note 436.

FIG. 1271.—THE CUTANEOUS AREAS OF THE BRACHIAL NERVES ON THE POSTERIOR OR DORSAL SURFACE OF THE UPPER EXTREMITY.

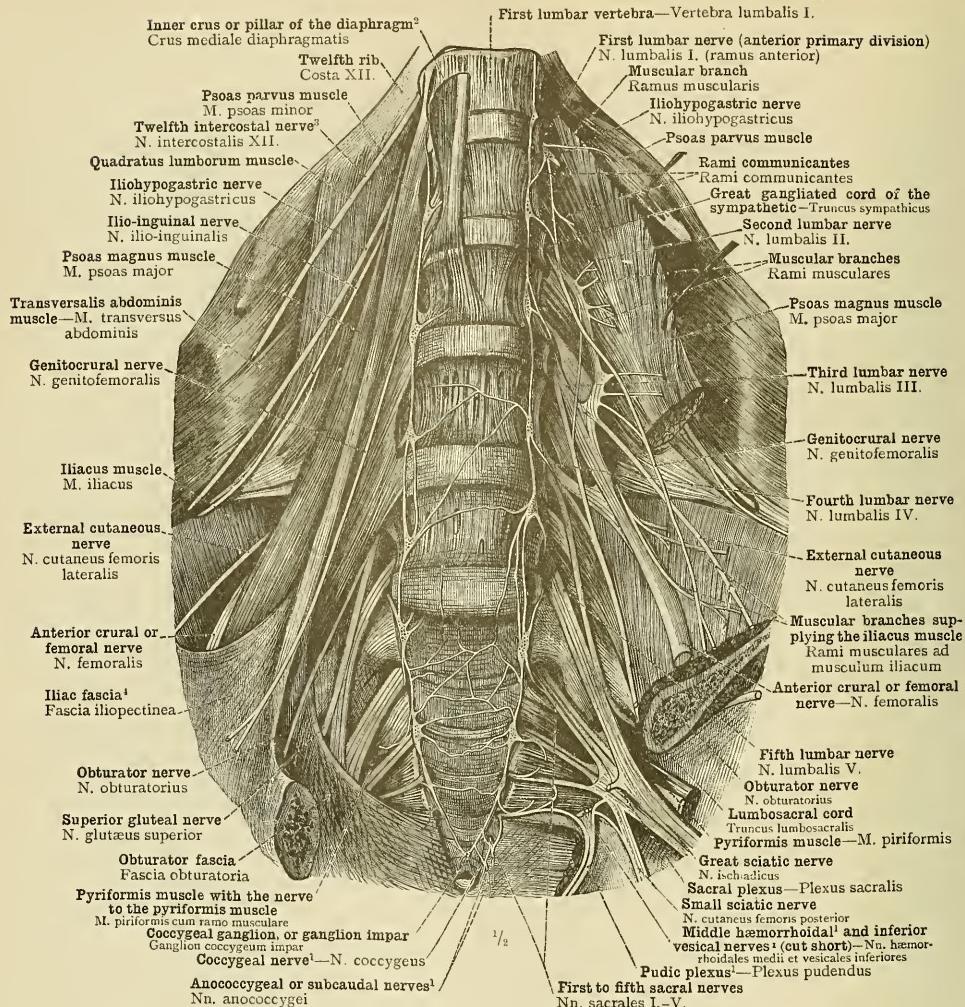


FIG. 1272.—THE *LUMBOSACRAL PLEXUS, PLEXUS LUMBOSACRALIS, COMPRISING THE LUMBAR PLEXUS, PLEXUS LUMBALIS, THE SACRAL PLEXUS, PLEXUS SACRALIS, AND THE PUDIC PLEXUS, PLEXUS PUDENDUS (see Appendix, note 4³⁸). THE FORMATION OF THE LUMBAR PLEXUS, PLEXUS LUMBALIS, OUT OF THE ANTERIOR PRIMARY DIVISIONS OF THE FIRST, SECOND, THIRD, AND PART OF THE FOURTH LUMBAR NERVES; THE JUNCTION OF THE REMAINING PORTION OF THE FOURTH LUMBAR NERVE (NERVUS FURCALIS) WITH THE FIFTH LUMBAR NERVE TO FORM THE LUMBOSACRAL CORD, TRUNCUS LUMBOSACRALIS. THE FORMATION OF THE SACRAL PLEXUS, PLEXUS SACRALIS (see Appendix, note 4³⁸), OUT OF THE LUMBOSACRAL CORD AND THE ANTERIOR PRIMARY DIVISIONS OF THE FIRST, SECOND, AND THIRD SACRAL NERVES. THE FORMATION OF THE PUDIC PLEXUS, PLEXUS PUDENDUS, OUT OF PORTIONS OF THE THIRD, FOURTH, AND FIFTH SACRAL NERVES.

On the left side of the body the psoas magnus and psoas parvus muscles were detached from the bodies of the lumbar vertebrae, and the great sacrosciatic foramen, foramen ischiadicum majus, was opened from before by the removal of a large segment of the hip-bone.

¹ See Appendix, note 4³⁸.

² Sometimes distinguished as the *subcostal nerve*.

² See note ¹ to p. 286, in Part III.

⁴ See note ¹ to p. 390, in Part III.

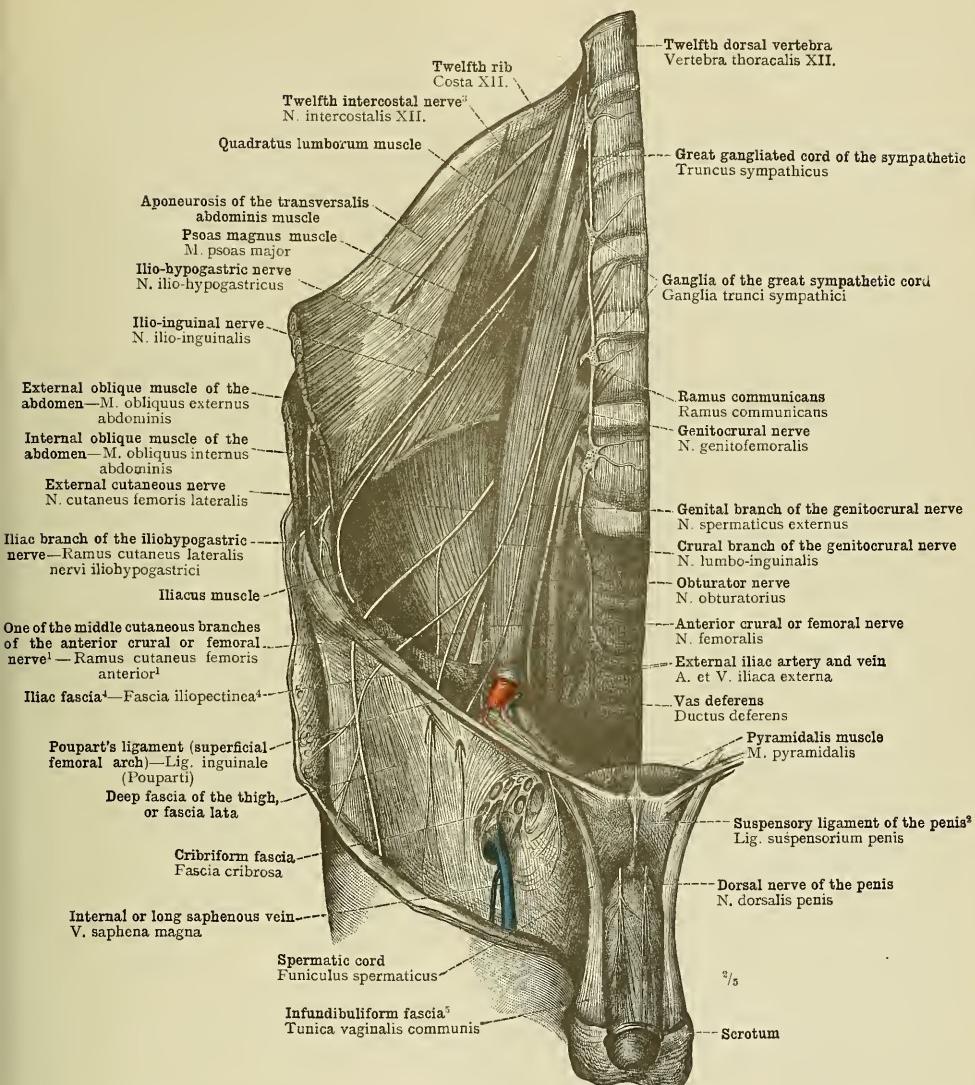


FIG. 1273.—THE NERVES ARISING FROM THE LUMBAR PLEXUS, AND THE PASSAGE OF THE GENITOCRURAL AND EXTERNAL CUTANEOUS NERVES (NN. GENITOFEOMRALIS ET CUTANEUS FEMORIS LATERALIS) INTO THE THIGH. THE RAMIFICATION OF THE DORSAL NERVE OF THE PENIS (N. DORSALIS PENIS) ON THE DORSUM OF THE PENIS.

The ilio-inguinal nerve has been cut short just above the anterior superior spine of the ilium.

¹ See Appendix, note 439.

² Sometimes distinguished as the *true suspensory ligament of the penis*, or *deep part of the suspensory ligament of the penis*; in the author's nomenclature, however, the *false suspensory ligament of the penis*, or *superficial part of the suspensory ligament of the penis*, is designated *ligamentum fundiforme penis*. See note ² to p. 362, in Part III.

³ Sometimes distinguished as the *subcostal nerve*.

⁴ See note ¹ to p. 390, in Part III.

⁵ See Appendix to Part IV., note 68.

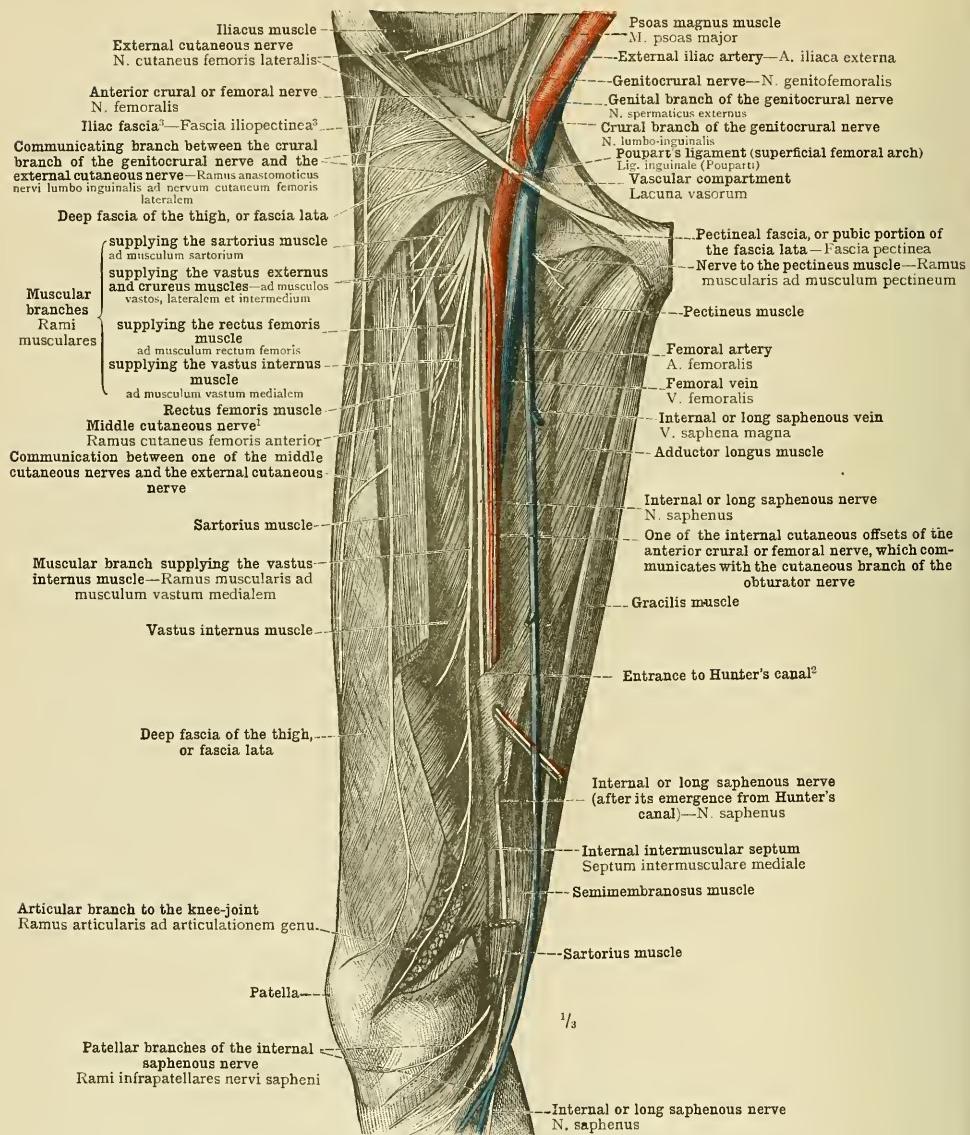


FIG. 1274.—THE DISTRIBUTION OF THE ANTERIOR CRURAL OR FEMORAL NERVE (N. FEMORALIS) ON THE FRONT OF THE THIGH, DISPLAYED BY THE PARTIAL REMOVAL OF THE SARTORIUS MUSCLE; THE ARTICULAR BRANCH TO THE KNEE-JOINT WAS EXPOSED BY MEANS OF AN INCISION IN THE VASTUS INTERNUS MUSCLE.

¹ See Appendix, note 439.

² According to English anatomists, the upper aperture of Hunter's canal (canalis adductorius Hunteri) is not at the point here shown, but much higher up in the thigh, at the apex of Scarpa's triangle. See Appendix to Part V., note 228.

³ See note ¹ to p. 350, in Part III.

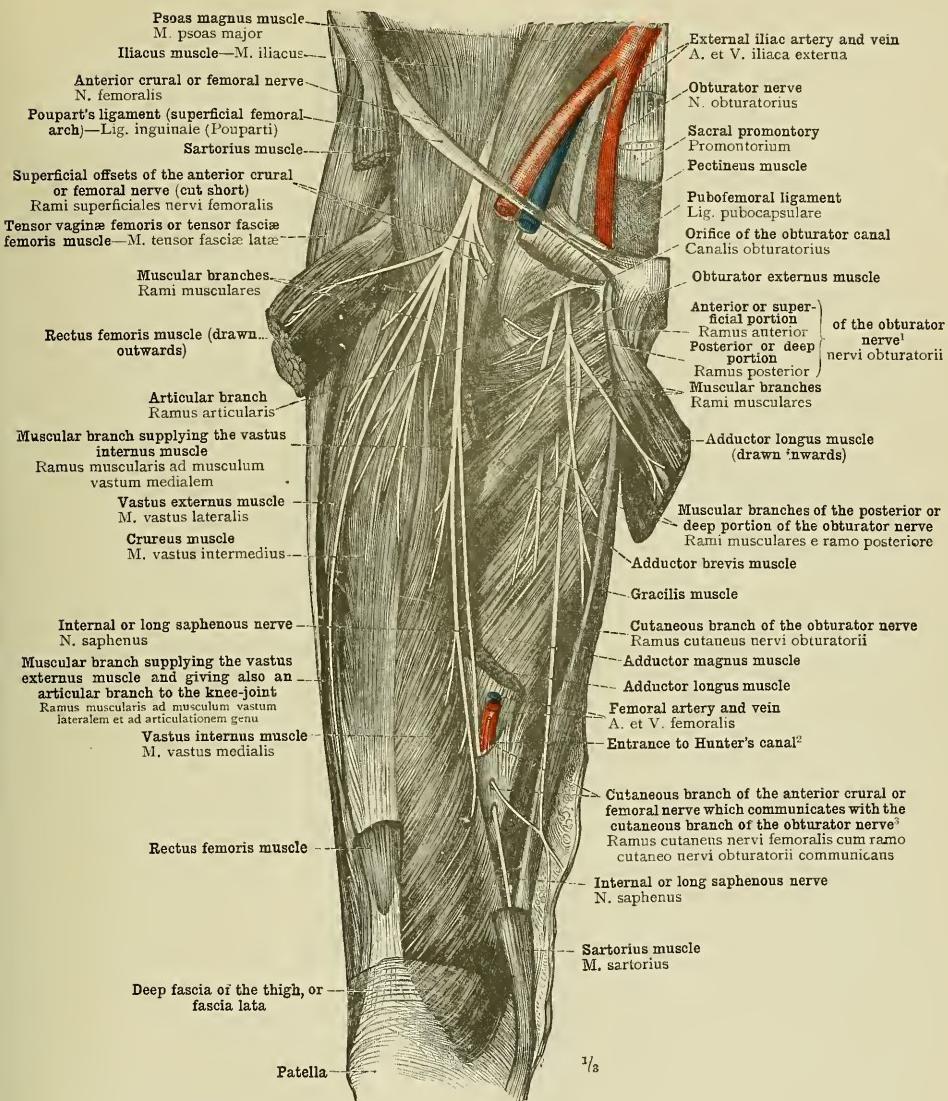
¹ See Appendix, note 44.² See note ² to p. 838.³ See Appendix, note 44.

FIG. 1275.—THE DISTRIBUTION OF THE ANTERIOR CRURAL OR FEMORAL NERVE (NERVUS FEMORALIS) AND THE OBTURATOR NERVE (NERVUS OBTURATORIUS), DISPLAYED FROM BEFORE BY THE PARTIAL REMOVAL OF THE SARTORIUS, RECTUS FEMORIS, ADDUCTOR LONGUS, AND PECTINEUS MUSCLES.

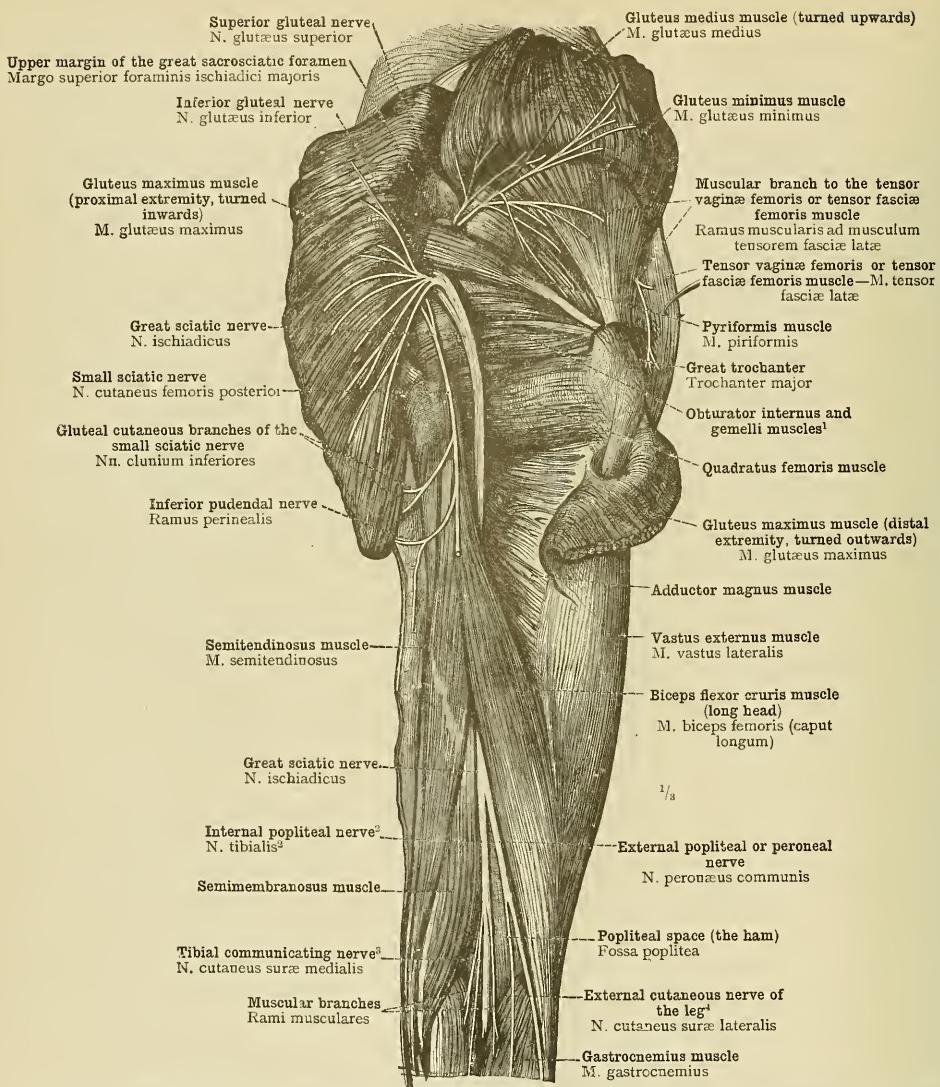


FIG. 1276.—THE SUPERIOR AND INFERIOR GLUTEAL NERVES, NN. GLUTÆI SUPERIOR ET INFERIOR, AND THEIR BRANCHES TO THE THREE GLUTEAL MUSCLES AND TO THE TENSOR VAGINÆ FEMORIS OR TENSOR FASCIÆ FEMORIS MUSCLE, M. TENSOR FASCIÆ LATEÆ. THE COURSE OF THE GREAT SCIATIC NERVE, N. ISCHIADICUS, FROM THE GLUTEAL REGION DOWN THE BACK OF THE THIGH, AND ITS DIVISION INTO THE INTERNAL POPLITEAL NERVE (see Appendix, note ⁴¹²), N. TIBIALIS, AND THE EXTERNAL POPLITEAL OR PERONEAL NERVE, N. PERONÆUS COMMUNIS.

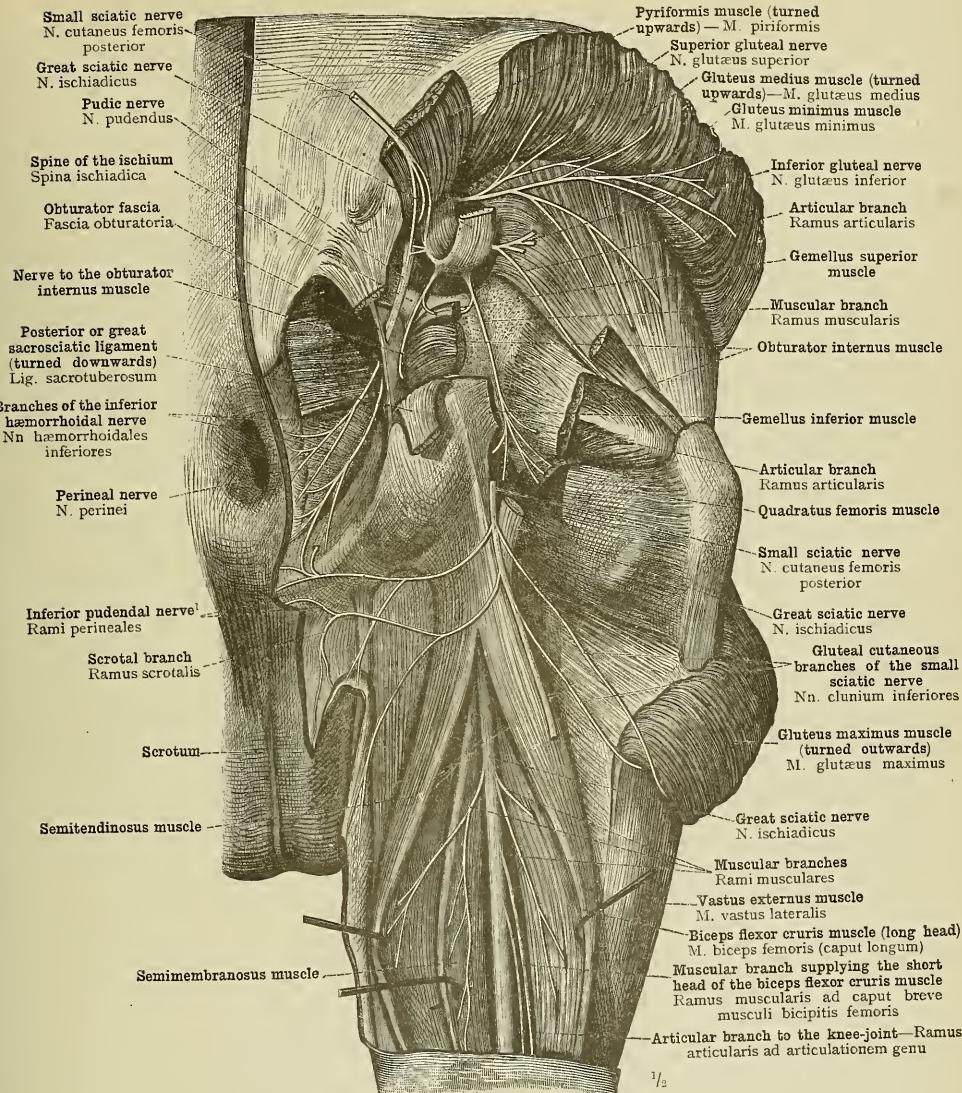
The gluteus maximus and gluteus medius muscles have been cut across, the segments of the former muscle having been turned inward and outward, respectively, while the latter muscle, which was divided close to its insertion, has been turned upwards.

¹ See note 1 to p. 340, in Part III.

² Sometimes known in England as the *communicans tibialis nerve*.

³ Quain calls this nerve the *lateral cutaneous nerve of the leg*, but gives no reason for departing from his ordinary usage of the word *external* to describe the relation in question.

The Deep Nerves of the Hip and the Thigh.



* See Appendix, note 443.

FIG. 1277.—THE NERVES SUPPLYING THE DEEP MUSCLES OF THE GLUTEAL REGION AND THE SKIN OF THE PERINEAL REGION. THE COURSE OF THE PUDIC NERVE, N. PUDENDUS, OVER THE SPINE OF THE ISCHIUM, SPINA ISCHIADICA, AND THROUGH THE OBTURATOR FASCIA INTO THE ISCHIORECTAL FOSSA.

The great and small sciatic nerves (*nervus ischiadicus* et *nervus cutaneus femoris posterior*) have been cut across and their proximal portions turned upwards. The posterior or great sacrosciatic ligament, *ligamentum sacrotuberosum*, has been cut across, and detached from the obturator fascia.

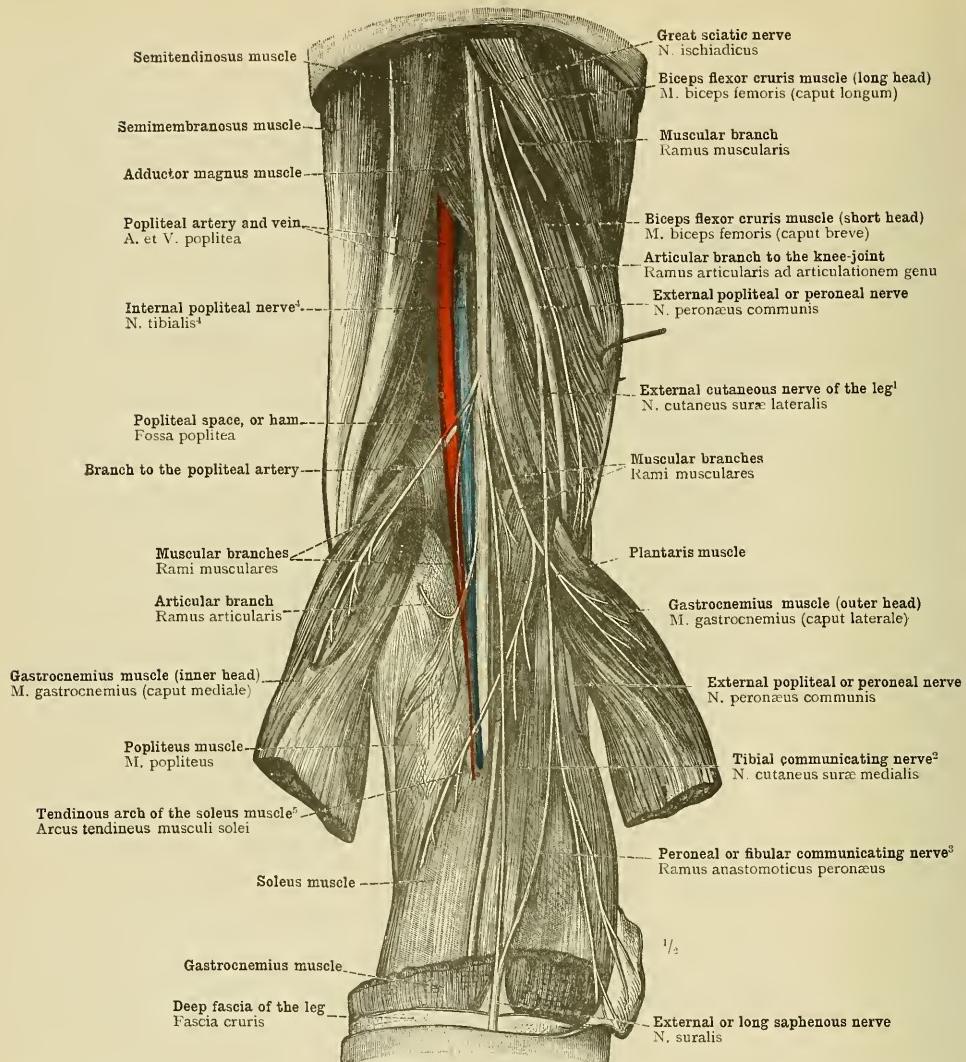


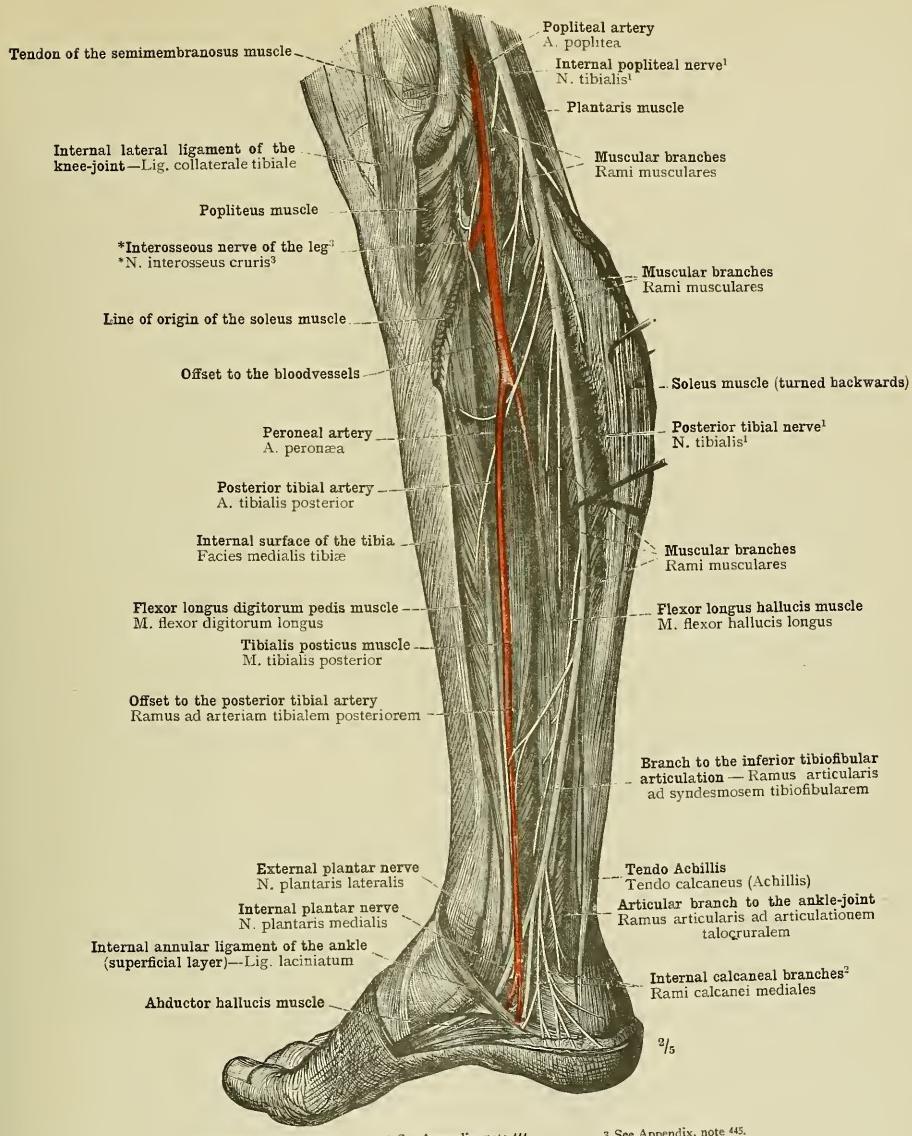
FIG. 1278.—DIVISION OF THE GREAT SCIATIC NERVE, N. ISCHIADICUS, INTO THE INTERNAL POPLITEAL NERVE, N. TIBIALIS (see Appendix, note ⁴²), AND THE EXTERNAL POPLITEAL OR PERONEAL NERVE, N. PERONAEUS COMMUNIS. THE RELATIONS OF THE INTERNAL POPLITEAL NERVE TO THE POPLITEAL ARTERY AND VEIN, AND THE RELATIONS ALSO TO THESE VESSELS OF THE MUSCULAR BRANCHES GIVEN OFF IN THE POPLITEAL SPACE. THE EXTERNAL CUTANEOUS NERVE OF THE LEG, N. CUTANEUS SURÆ LATERALIS, GIVES OFF THE PERONEAL OR FIBULAR COMMUNICATING NERVE, RAMUS ANASTOMOTICUS PERONÆUS; FROM THE INTERNAL POPLITEAL NERVE IS DERIVED THE TIBIAL COMMUNICATING NERVE, N. CUTANEUS SURÆ MEDIALIS; THESE TWO COMMUNICATING NERVES UNITE, IN THIS SPECIMEN NEAR THE TOP OF THE CALF, TO FORM THE EXTERNAL SAPHENOUS NERVE, N. SURALIS.

The heads of the gastrocnemius muscle have been cut across and turned inwards and outwards respectively, thus exposing the popliteus, soleus, and plantaris muscles, as well as the tendon of the last-named muscle.

¹ See note ⁴ to p. 840.
³ Sometimes known in England as the *communicans tibialis nerve*.
3 Sometimes known in England as the *communicans fibularis nerve*.

² Sometimes known in England as the *communicans fibularis nerve*.
⁴ See Appendix, note ⁴².

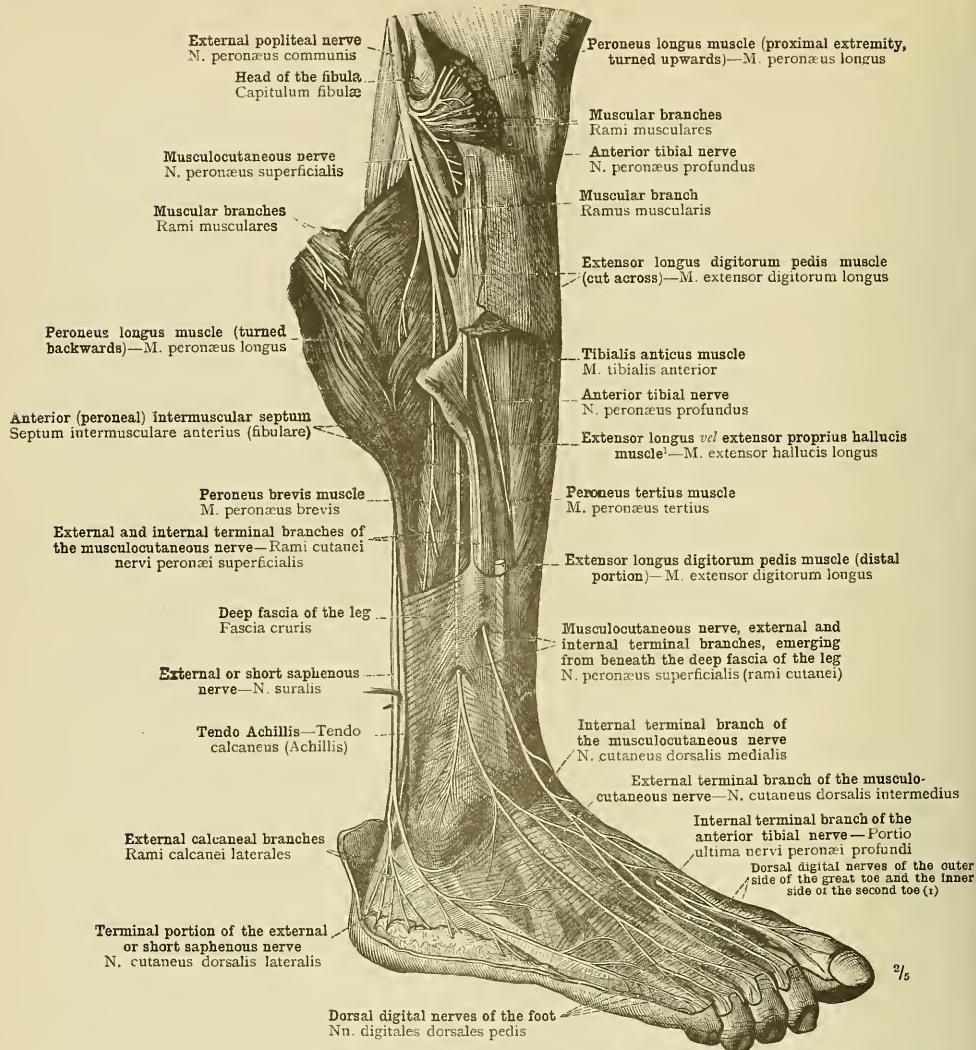
5 See note 7 to p. 363, in Part III.

¹ See Appendix, note 442.² See Appendix, note 444.³ See Appendix, note 445.

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FIG. 1279.—THE BRANCHES OF THE INTERNAL POPLITEAL NERVE (N. TIBIALIS) AND ITS CONTINUATION, THE POSTERIOR TIBIAL NERVE (N. TIBIALIS—see Appendix, note 442), TO THE DEEP MUSCLES OF THE BACK OF THE LEG AND TO THE SKIN OF THE CALCANEAL REGION; THE DIVISION OF THE POSTERIOR TIBIAL NERVE INTO THE EXTERNAL AND INTERNAL PLANTAR NERVES (NN. PLANTARES, LATERALIS ET MEDIALIS). SEEN FROM THE INNER SIDE.

The soleus muscle has been detached from its tibial origin and turned backwards.



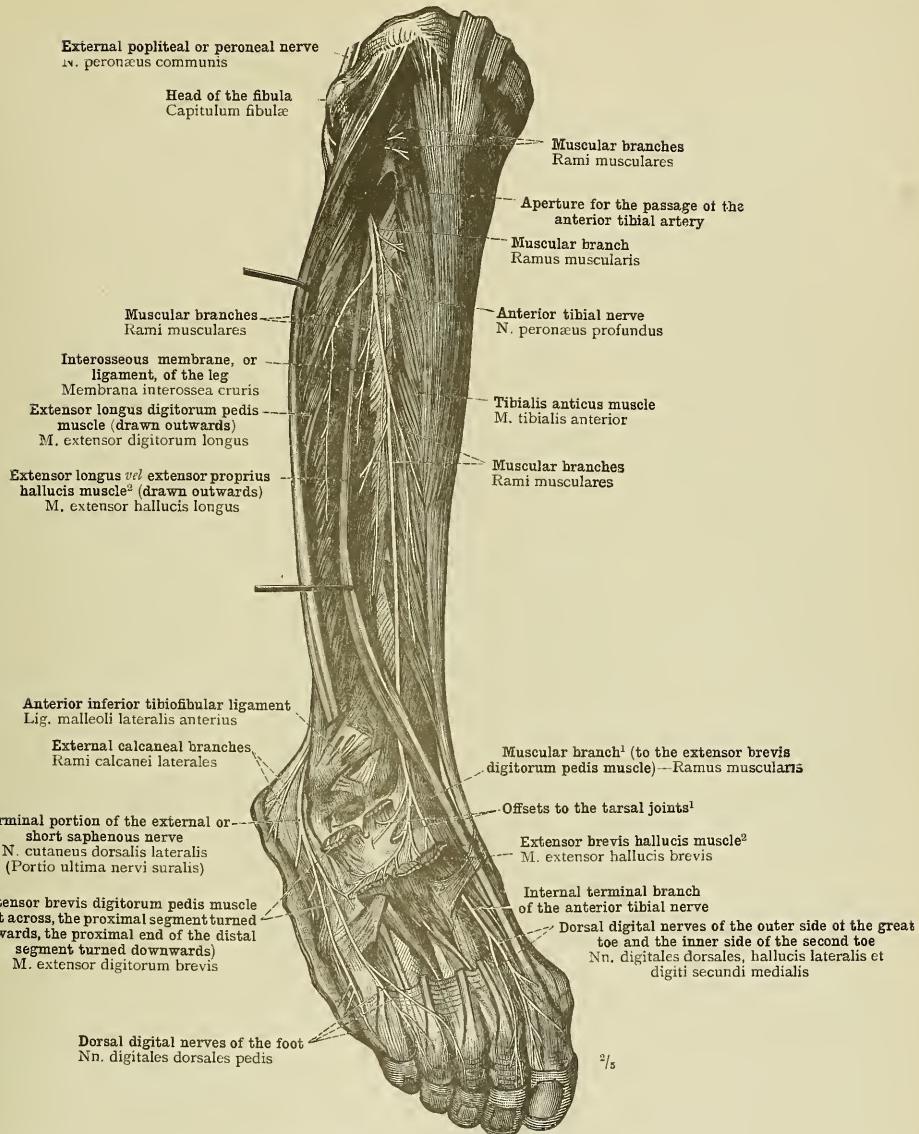
(t) Nu. digitales dorsales, hallucis lateralis et digiti II. medialis

¹ See note ² to p. 364, in Part III.

FIG. 1280.—THE DISTRIBUTION OF THE EXTERNAL POPLITEAL OR PERONEAL NERVE, ITS BRANCHES TO THE PERONEUS LONGUS AND PERONEUS BREVIS MUSCLES, AND ITS CUTANEOUS BRANCH TO THE DORSUM OF THE FOOT, THE MUSCULOCUTANEOUS NERVE, N. PERONEUS SUPERFICIALIS, WHICH DIVIDES (IN THIS SPECIMEN) A LITTLE BELOW THE KNEE INTO EXTERNAL AND INTERNAL TERMINAL BRANCHES, NN. CUTANEI DORSALES, MEDIALIS ET INTERMEDIUS. THE DISTRIBUTION OF THESE TWO CUTANEOUS NERVES AND OF THE EXTERNAL OR SHORT SAPHENOUS NERVE, N. SURALIS, THE TERMINAL PORTION OF WHICH (AS THE N. CUTANEUS DORSALIS LATERALIS) SUPPLIES THE SKIN OF THE OUTER SIDE OF THE DORSUM OF THE FOOT. THE INTERNAL TERMINAL BRANCH OF THE ANTERIOR TIBIAL NERVE, SUPPLYING THE ADJACENT SIDES OF THE FIRST AND SECOND TOES, IS ALSO SEEN. VIEWED FROM THE OUTER SIDE.

The peroneus longus muscle has been incised above, and the margins of the incision have been well separated.

Nerves of the Leg and Foot.

¹ See Appendix, note 446.² See note ² to p. 364, in Part III.

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FIG. 1281.—THE ANTERIOR TIBIAL NERVE, N. PERONÆUS PROFUNDUS, AND ITS DISTRIBUTION TO THE MUSCLES OF THE FRONT OF THE LEG AND THE DORSUM OF THE FOOT. THE DISTRIBUTION ON THE FOOT OF THE TERMINAL PORTION OF THE EXTERNAL OR SHORT SAPHENOUS NERVE; IN THIS SPECIMEN THE CUTANEOUS AREA OF THIS NERVE EXTENDS TO THE FOURTH AND THIRD TOES, WHEREAS IN THE SPECIMEN DEPICTED IN FIG. 1280 THIS AREA IS LIMITED TO THE OUTER SIDE OF THE LITTLE TOE.

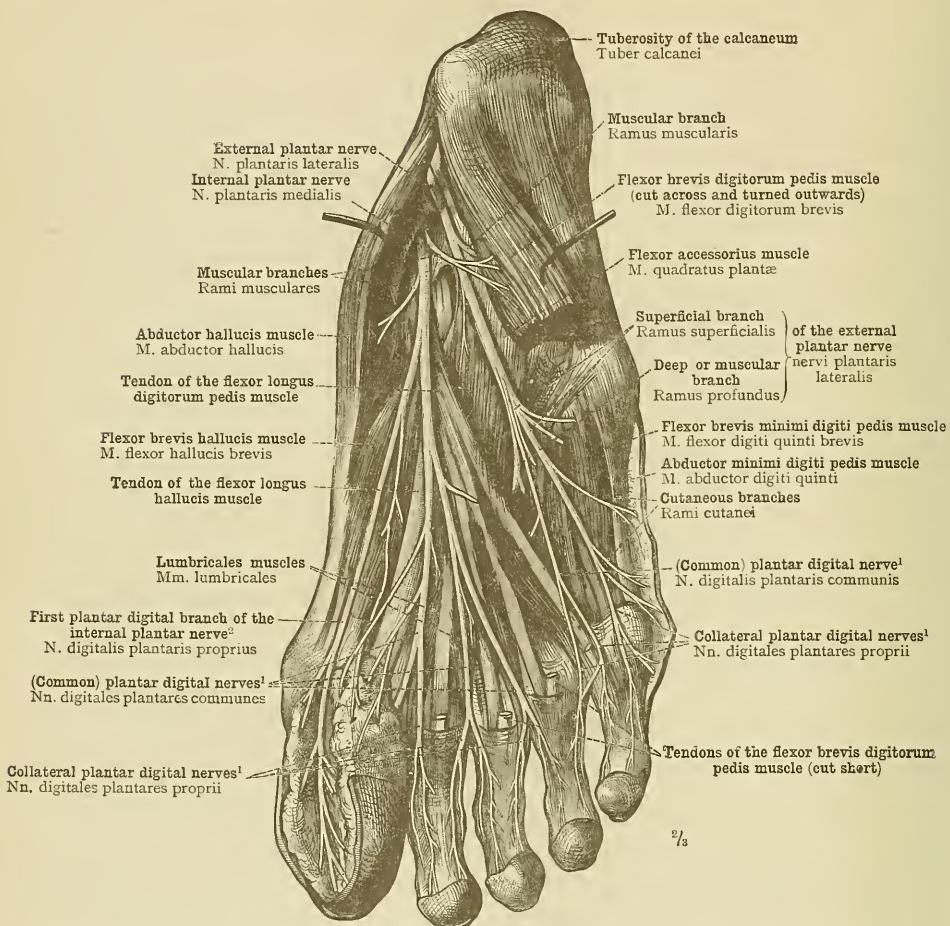


FIG. 1282.—THE DEEP NERVES OF THE SOLE OF THE FOOT, DISPLAYED BY THE PARTIAL REMOVAL OF THE PLANTAR FASCIA, APONEUROYSIS PLANTARIS, AND OF THE FLEXOR BREVIS DIGITORUM PEDIS MUSCLE. THE PROXIMAL HALF OF THE ABDUCTOR HALLUCIS MUSCLE HAS BEEN DRAWN OUTWARDS, IN ORDER TO EXPOSE THE ENTRANCE OF THE EXTERNAL AND INTERNAL PLANTAR NERVES, *NERVI PLANTARES, LATERALIS ET MEDIALIS*, INTO THE SOLE OF THE FOOT.

* *Plantar Digital Nerves.*—As in the case of the *palmar* digital nerves, the author distinguishes between the *nervi digitales plantares communes*, *common* plantar digital nerves (before division), and the *nervi digitales plantares proprie*, *collateral* plantar digital nerves (after division). The distinction is often ignored in the English nomenclature.

† This branch (in common with which arises the *nervi to the flexor brevis hallucis muscle*) supplies the skin of the inner half of the plantar surface of the great toe. Strictly speaking it is one of the *collateral* plantar digital branches (see note * above)—*N. digitalis plantaris proprius* in the author's nomenclature.

Nerves of the Sole of the Foot.

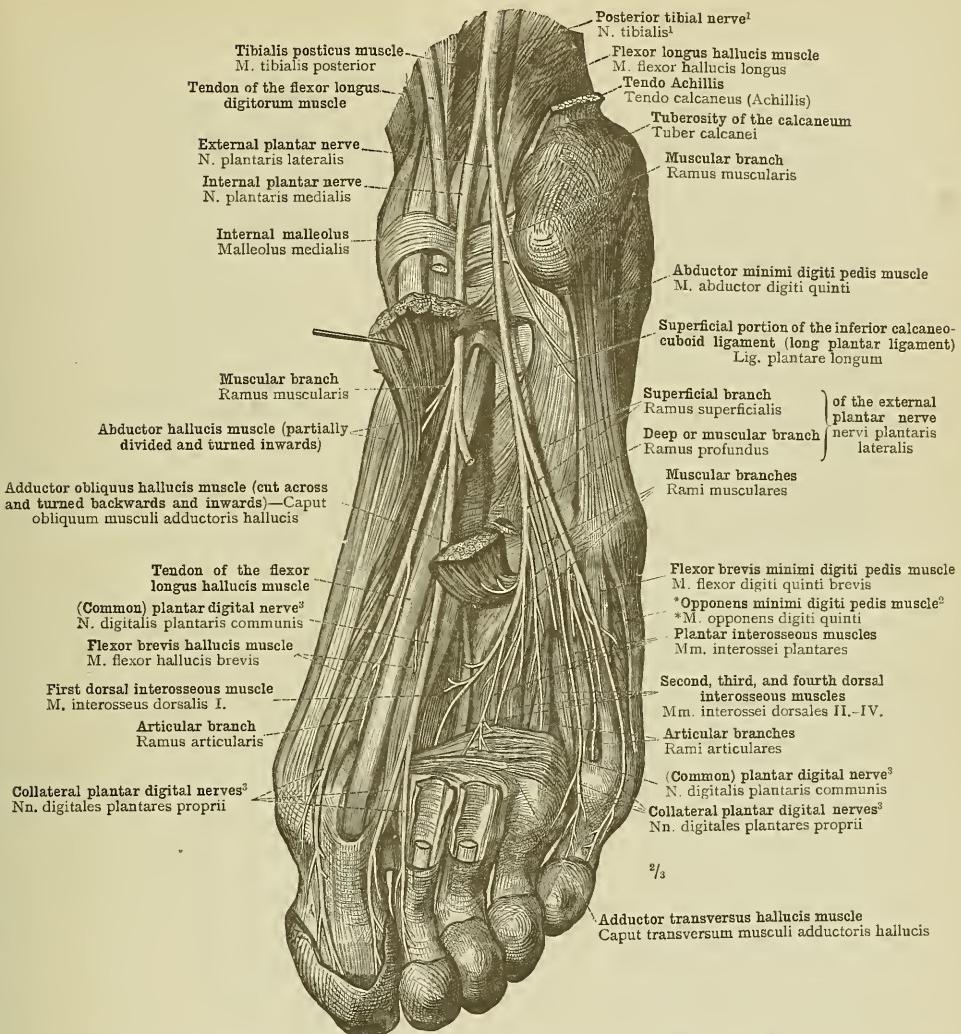
¹ See Appendix, note 442.² See note 3 to p. 364, in Part III.³ See note 2 to p. 846.

FIG. 1283.—THE DEEP OR MUSCULAR BRANCH OF THE EXTERNAL PLANTAR NERVE, RAMUS PROFUNDUS NERVI PLANTARIS LATERALIS, AND ITS DISTRIBUTION TO THE DEEP MUSCLES OF THE SOLE OF THE FOOT, DISPLAYED BY THE REMOVAL OF THE LONG AND THE SHORT FLEXORS OF THE TOES, AND BY DRAWING ASIDE THE ADDUCTOR OBLIQUUS HALLUCIS MUSCLE, CAPUT OBLIQUUM MUSCULI ADDUCTORIS HALLUCIS. THE PASSAGE OF THE EXTERNAL AND INTERNAL PLANTAR NERVES, NERVI PLANTARES, MEDIALIS ET LATERALIS, INTO THE SOLE OF THE FOOT HAS BEEN EXPOSED BY CUTTING THROUGH THE SUPERFICIAL LAYERS OF THE INTERNAL ANNULAR LIGAMENT OF THE ANKLE (LIGAMENTUM LACINIATUM) AND THE ABDUCTOR HALLUCIS MUSCLE.

Nerves of the Sole of the Foot.

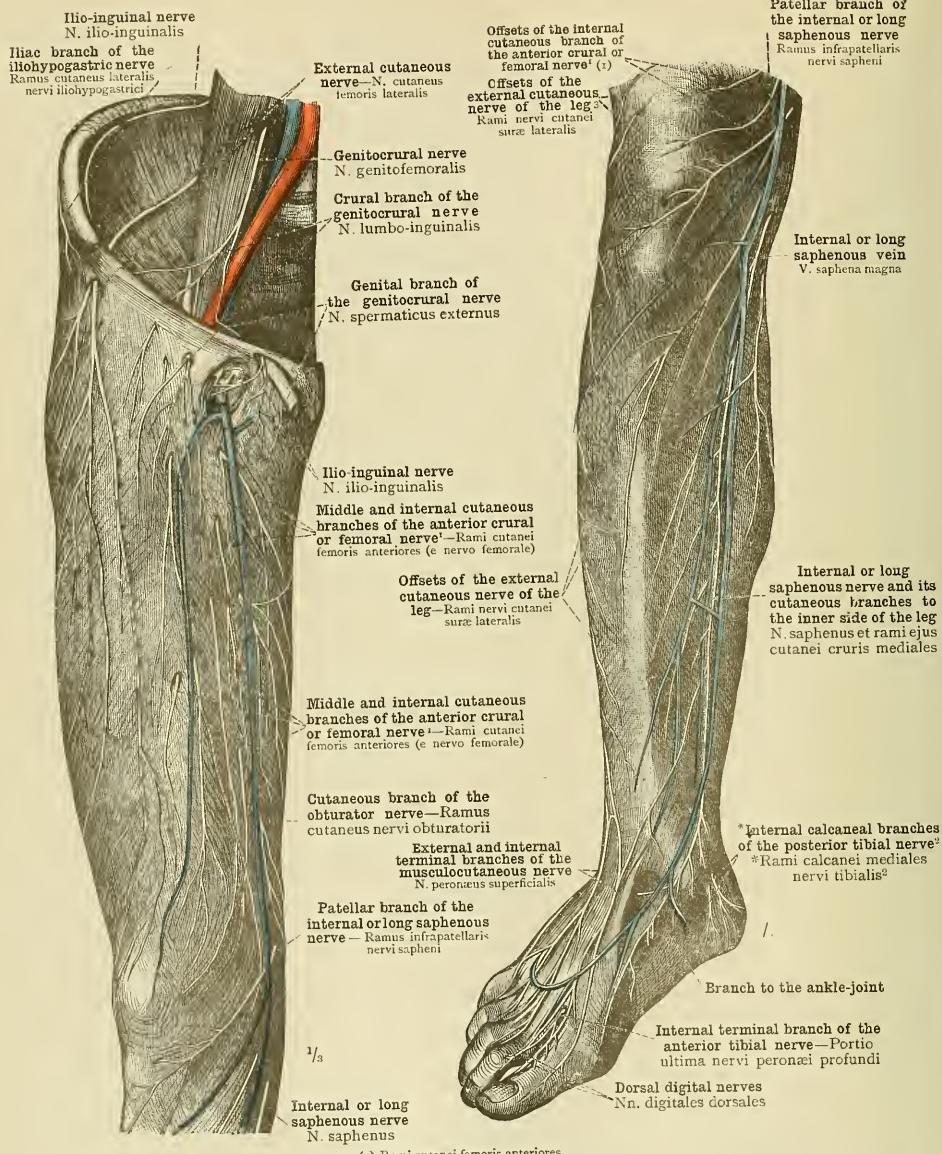


FIG. 1284.—THE CUTANEOUS NERVES OF THE FRONT AND THE INNER SIDE OF THE THIGH.

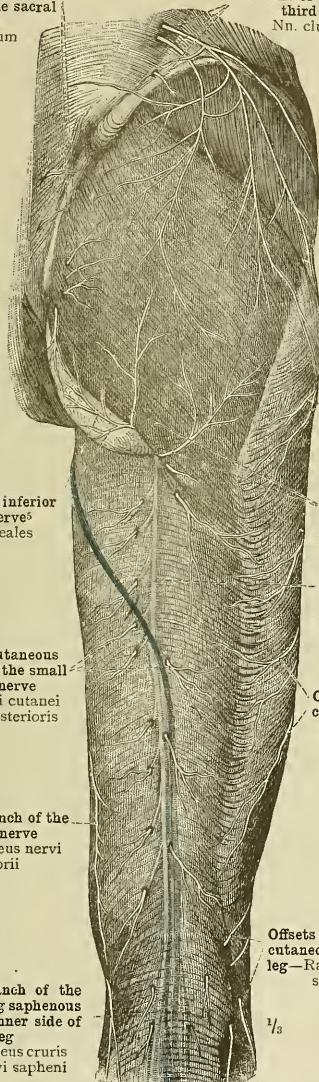
¹ See Appendix, note 439.

FIG. 1285.—THE CUTANEOUS NERVES OF THE INNER SIDE AND THE FRONT OF THE LEG AND OF THE INNER SIDE AND THE DORSUM OF THE FOOT.

² See Appendix, note 444.

³ See note ⁴ to p. 840.

Cutaneous offsets of the external branches of the posterior primary divisions of the sacral nerves
Nu. clunium medii



Cutaneous offsets of the external branches of the posterior primary divisions of the first, second, and third lumbar nerves
Nu. clunium superiores

Internal popliteal nerve⁴—N. tibialis⁴

Small sciatic nerve
N. cutaneus femoris posterior

Cutaneous branch of the internal or long saphenous nerve to inner side of the leg
Ramus cutaneus cruris medialis nervi sapheni

Offsets of the external cutaneous nerve
Rami nervi cutanei femoris lateralis

Gluteal cutaneous branches of the small sciatic nerve
Nu. clunium inferiores

Small sciatic nerve (seen through the fascia lata)
N. cutaneus femoris posterior

Offsets of the external cutaneous nerve (of the thigh)
Rami nervi cutanei femoris lateralis

External popliteal or peroneal nerve
N. peronaeus communis

Tibial communicating nerve⁴—N. cutaneus surae medialis
External cutaneous nerve of the leg²
N. cutaneus surae lateralis

External or short saphenous vein
V. saphena parva

Tibial communicating nerve¹ (seen through the deep fascia)
N. cutaneus surae medialis

Tibial communicating nerve¹—N. cutaneus surae medialis

Peroneal or fibular communicating nerve³
Ramus anastomoticus peroneus

External or short saphenous nerve
N. suralis

Terminal portion of the external or short saphenous nerve
N. cutaneus dorsalis lateralis

FIG. 1286.—THE CUTANEOUS NERVES OF THE GLUTEAL REGION AND THE BACK OF THE THIGH.

¹ Sometimes known in England by the name *communicans tibialis nerve*.
² See note ⁴ to p. 840.
³ Sometimes known in England as the *communicans fibularis nerve*.

⁴ See Appendix, note 442.

⁵ See Appendix, note 443.

Cutaneous Nerves of the Lower Extremity.

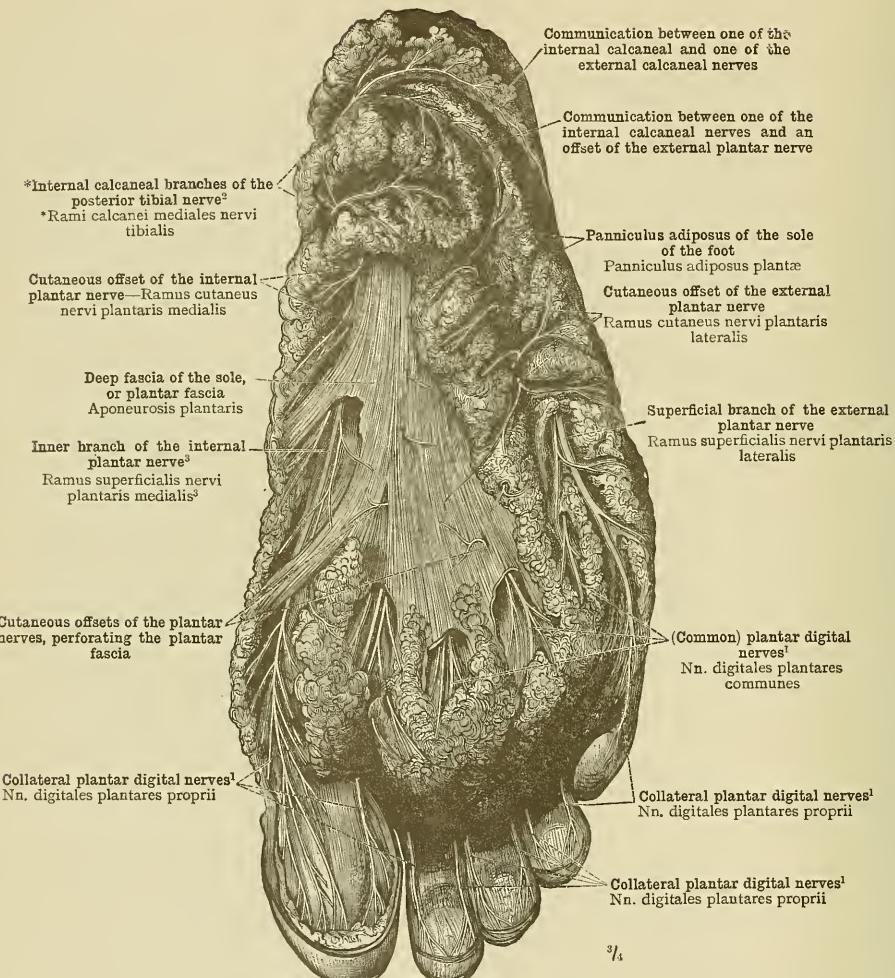


FIG. 1288.—THE CUTANEOUS NERVES OF THE SOLE OF THE FOOT, THE SKIN HAVING BEEN REMOVED, BUT THE SUPERFICIAL FASCIA (PANNICULUS ADIPOSUS) IN PART PRESERVED.

¹ See note 1 to p. 846.

² See Appendix, note 444.

³ Inner Branch of the Internal Plantar Nerve.—In the original German edition of this work the author, in the letterpress to Fig. 1288, calls this "Oberflächlicher Ast des N. plantaris medialis," the superficial branch of the internal plantar nerve. In the German official nomenclature, however, this nerve is not, like the external plantar nerve, said to divide into a *ramus superficialis* and a *ramus profundus*. Quain calls the branch in question the *first digital branch of the internal plantar nerve*, "destined for the inner side of the great toe; it becomes subcutaneous further back than the others, and sends off a branch to the flexor brevis hallucis muscle" (Quain, *op. cit.*, vol. iii., part i., p. 333). But in the description of Fig. 217, on the next page to that just quoted, Quain calls this nerve "the *inner branch of the internal plantar nerve*, giving branches to the flexor brevis hallucis muscle, and forming the internal collateral nerve of the great toe." The second of the two names used by Quain is that which I have adopted in the text.

Cutaneous Nerves of the Sole of the Foot.

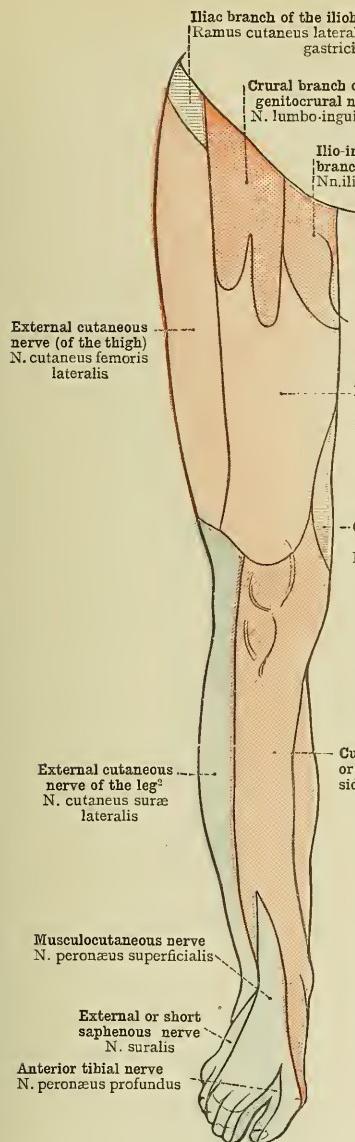


FIG. 1289.—THE CUTANEOUS AREAS OF THE NERVES OF THE LOWER EXTREMITY. ANTERIOR SURFACE.

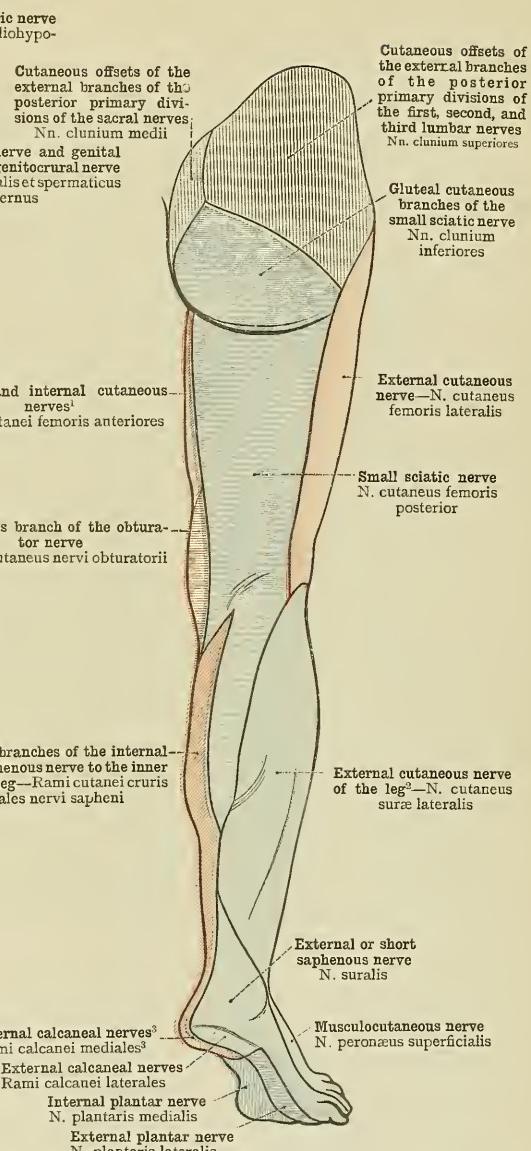


FIG. 1290.—THE CUTANEOUS AREAS OF THE NERVES OF THE LOWER EXTREMITY. POSTERIOR SURFACE.

¹ See Appendix, note 439.

² See note 4 to p. 840.

³ Calcocephalplantar nerve, according to Quain. See Appendix, note 444.

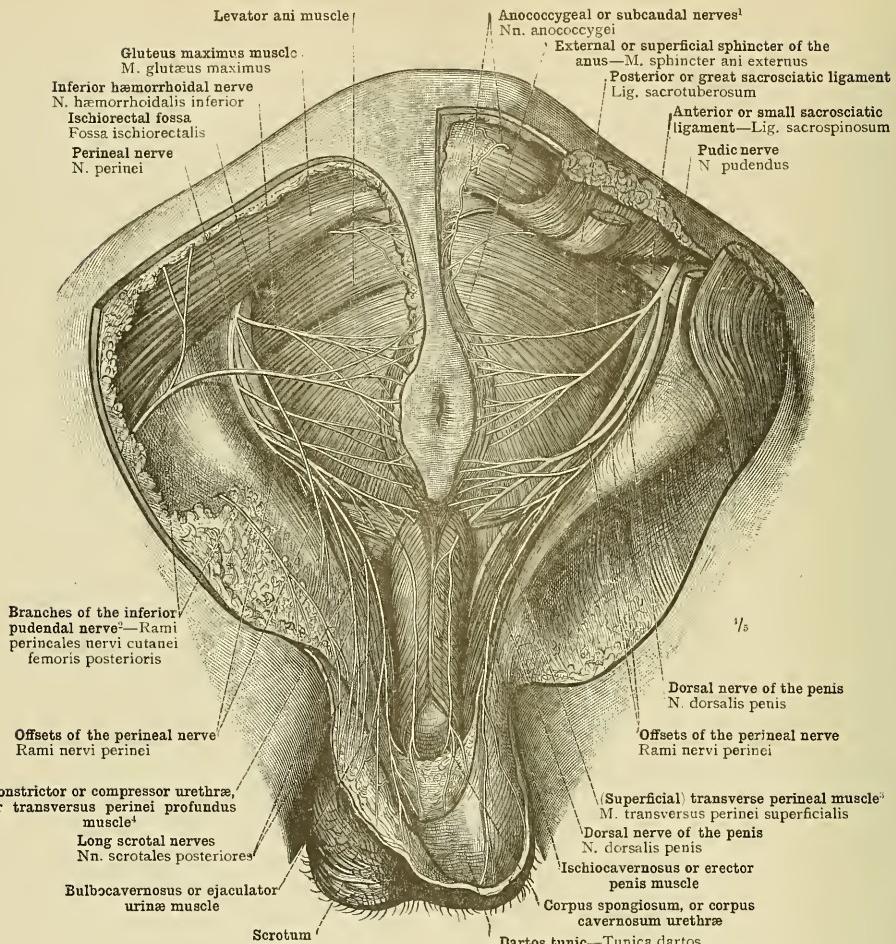
¹ See Appendix, note 438.² See Appendix, note 433.³ See note ¹ to p. 527, in Part IV.⁴ See Appendix to Part IV., note 101.

FIG. 1291.—THE DISTRIBUTION OF THE PUDIC NERVE, N. PUDENDUS, IN THE PERINEAL REGION OF THE MALE AND ON THE BACK OF THE SCROTUM. THE COURSE OF THE DORSAL NERVE OF THE PENIS, N. DORSALIS PENIS, IN THE OUTER WALL OF THE ISCHIORECTAL FOSSA, FOSSA ISCHIORECTALIS. THE ANOCOCYGEAL OR SUBCAUDAL NERVES, NN. ANOCOCYGEI (see Appendix, note 438). ON THE LEFT SIDE OF THE BODY THE BRANCHES OF THE INFERIOR PUDENDAL NERVE, RAMI PERINEALES NERVI CUTANEI FEMORIS POSTERIORIS (see Appendix, note 433), HAVE BEEN DISSECTED OUT. ONE OF THESE BRANCHES IS UNUSUALLY LARGE IN THIS SPECIMEN, AND SUPPLIES THE SKIN OF THE ANAL REGION (VAR.).

On the right side of the body the hinder portion of the gluteus maximus muscle and the posterior or great sacrosciatic ligament (ligamentum sacrotuberosum) have been divided, in order to display the entrance of the pudic nerve (n. pudendus) into the ischiorectal fossa. On the same side the urogenital diaphragm (see Appendix to Part IV., note 99) has been removed, but the (superficial) transverse perineal muscle (see note ¹ to p. 527, in Part IV.) has been left intact. The trunk of the internal pudic nerve (n. pudendus) and the primary branches of that nerve, in so far as they run within the substance of the obturator fascia, have been dissected out of that fascia.

Nerves of the Male Perineal Region.

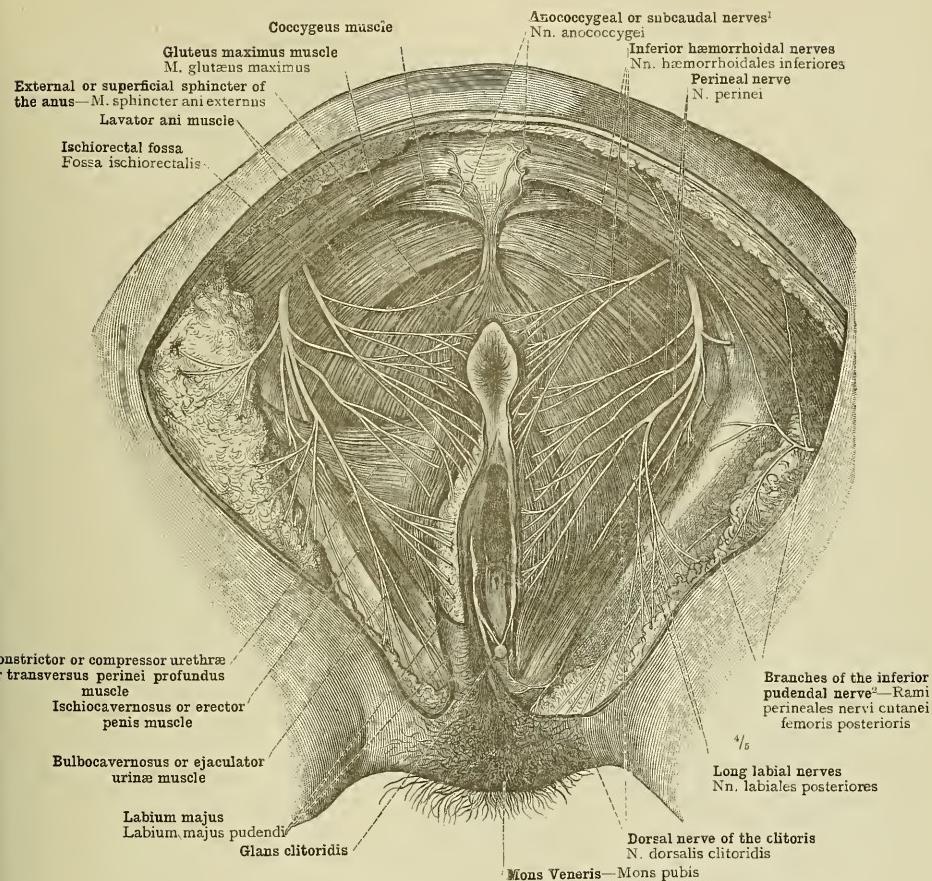
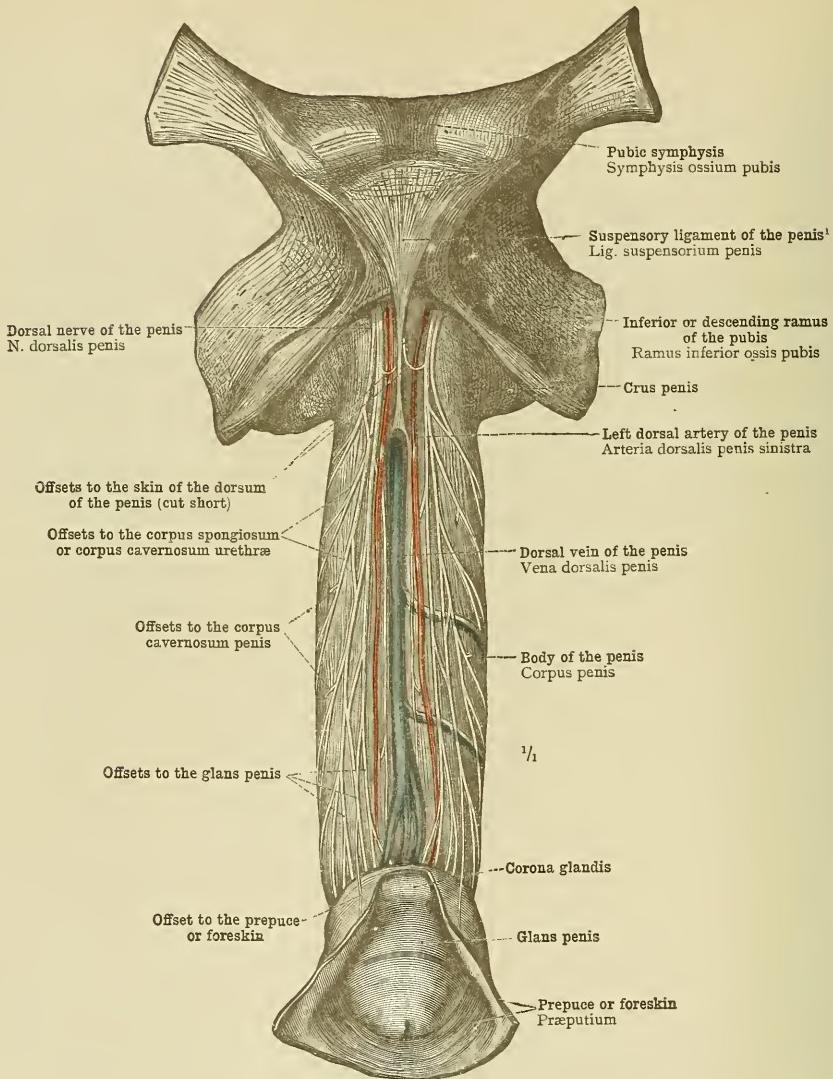
^a See Appendix, note 438.^b See Appendix, note 443.

FIG. 1292.—THE DISTRIBUTION OF THE PUDIC NERVE, N. PUDENDUS, IN THE FEMALE PERINEAL AND PUBIC REGIONS. THE TRUNK OF THE PUDIC NERVE, N. PUDENDUS, IS COVERED BY THE GLUTEUS MAXIMUS MUSCLE. ON THE RIGHT SIDE OF THE BODY THE BRANCHES OF THE INFERIOR PUDENDAL NERVE, RAMI PERINEALES, NERVI CUTANEI FEMORIS POSTERIORIS (see Appendix, note 443), HAVE BEEN DISSECTED OUT; BUT THE BRANCHES OF THIS NERVE TO THE LABIUM MAJUS HAVE BEEN CUT SHORT. THE FORMATION OF THE ANOCOCYGEAL OR SUBCAUDAL NERVES, NN. ANOCOCYGEI (see Appendix, note 438), OUT OF THE POSTERIOR PRIMARY DIVISION OF THE COCCYGEAL NERVE AND OUT OF PERFORATING BRANCHES WHICH ARISE FROM THE ANTERIOR PRIMARY DIVISIONS OF THE FOURTH AND FIFTH SACRAL NERVES AND THE COCCYGEAL NERVE. IN THIS CONNEXION SEE ALSO FIG. 1295.

On the right side of the body the urogenital diaphragm (see *Appendix to Part IV.*, note 99) and the labium majus have been entirely removed, whereas on the left side the skin has only been in part dissected off the labium majus, and the constrictor or compressor urethrae or transversus perinei profundus (see *Appendix to Part IV.*, note 101) muscle has been left intact.

Nerves of the Female Perineal Region.



¹ This ligament is in England commonly distinguished as the *true suspensory ligament of the penis*. See note ² to p. 382, in Part III.—Tr.

FIG. 1293.—THE DISTRIBUTION OF THE DORSAL NERVE OF THE PENIS, N. DORSALIS PENIS, ON THE DORSUM OF THE PENIS, AND THE RELATION OF THE DORSAL ARTERY AND VEIN OF THE PENIS TO THE OFFSETS OF THE DORSAL NERVE OF THE PENIS.

The skin of the penis has been removed, with the exception of the prepuce or foreskin (præputium); an incision has been made through the dorsal portion of the latter, in the median line.

Nerves of the Penis.

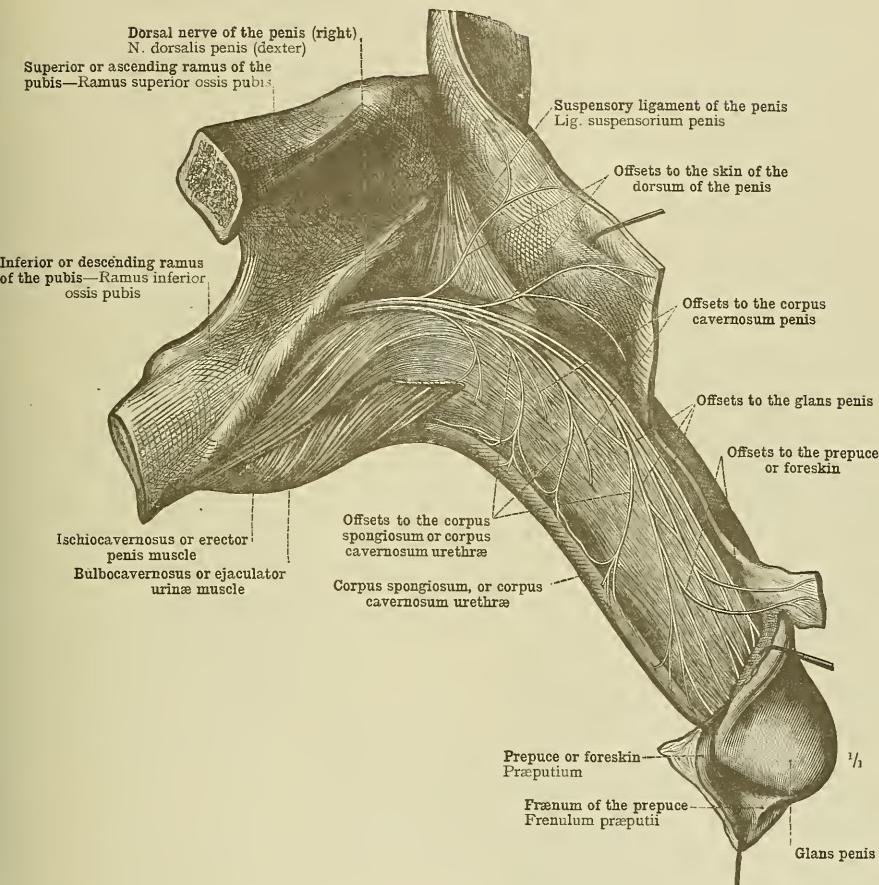
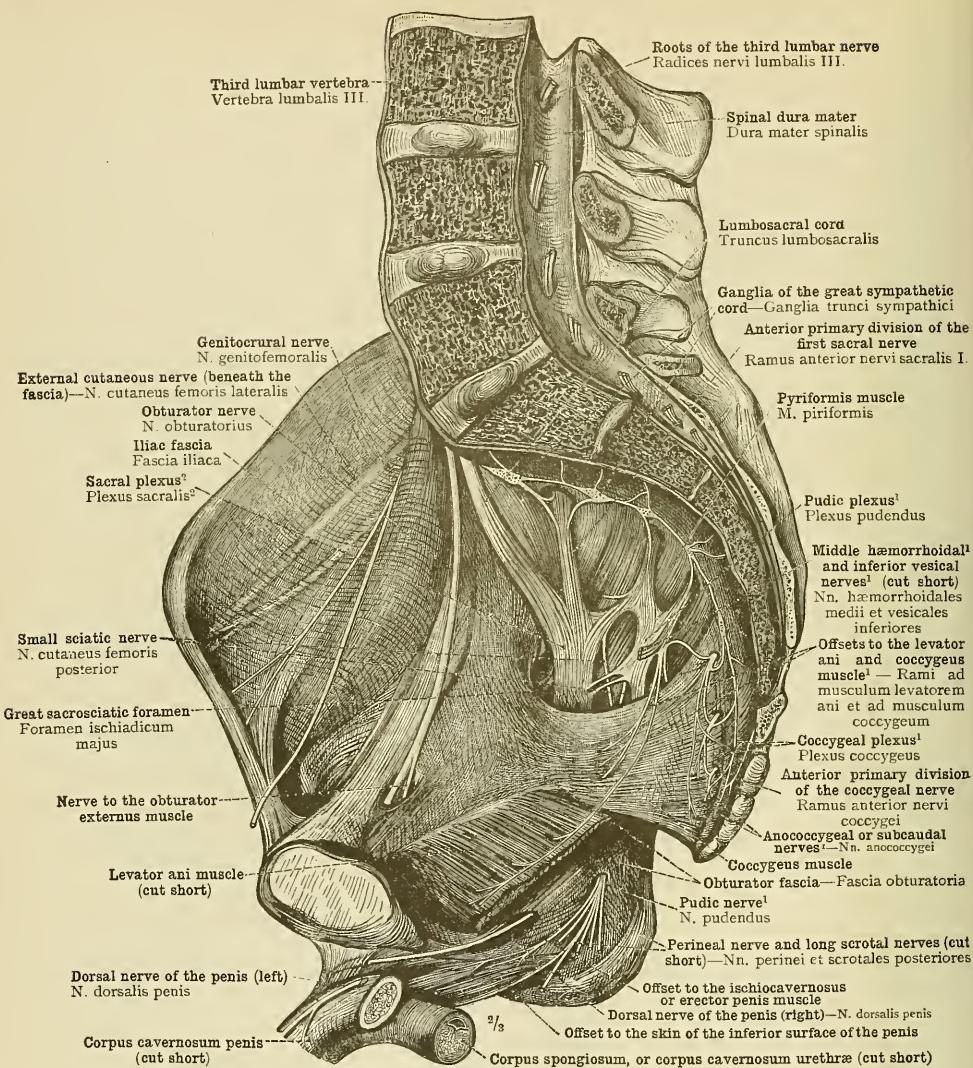


FIG. 1294.—THE DISTRIBUTION OF THE DORSAL NERVE OF THE PENIS IN THE SUBSTANCE OF THE PENIS AND THE SKIN OF THAT ORGAN. SEEN FROM THE RIGHT SIDE.

The preserved portion of the skin of the right side of the penis and the mons pubis has been drawn forwards. The anterior portion of the bulbocavernosus or erector penis muscle has been cut away, in order to expose to view the branch of the dorsal nerve of the penis that enters that muscle.



¹ See Appendix, note 438.

² The nervous plexus denoted here by the term *plexus sacralis* is by some English authors called the *sciatic plexus*, the *sacral plexus* of those authors comprising both the *plexus sacralis* and the *plexus pudendum* of Toldt. See Appendix, note 438.

FIG. 1295.—THE SACRAL PLEXUS, PLEXUS SACRALIS (see note ² above), THE PUDIC PLEXUS, PLEXUS PUDENDUS (see Appendix, note 438), AND THE COCCYGEAL PLEXUS, PLEXUS COCCYGEUS (see Appendix, note 438), AS SEEN IN THE RIGHT HALF OF A MALE PELVIS DIVIDED BY A MEDIAN SAGITTAL SECTION. THE NERVES TO THE LEVATOR ANI AND COCCYGEUS MUSCLES, DERIVED FROM THE THIRD AND FOURTH SACRAL NERVES (see Appendix, note 438). THE OFFSETS FROM THE ANTERIOR PRIMARY DIVISIONS OF THE COCCYGEAL NERVE AND THE FOURTH AND FIFTH SACRAL NERVES WHICH, AFTER RECEIVING A COMMUNICATING BRANCH FROM THE SYMPATHETIC NERVOUS SYSTEM, PERFORATE THE COCCYGEUS MUSCLE AND ASSIST IN FORMING THE ANOCOCCYGEAL OR SUBCAUDAL NERVES, NN. ANOCOCCYGEI. (IN THIS CONNEXION SEE ALSO FIG. 1292.) THE PASSAGE OF BRANCHES OF THE PUDIC NERVE, N. PUDENDUS, THROUGH THE OBTURATOR FASCIA INTO THE ISCHIORECTAL FOSSA.

The Sacral Plexus, Plexus Sacralis; the Pudic Plexus, Plexus Pudendus; and the Coccygeal Plexus, Plexus Coccygeus (see Appendix, note 438, and note ² above).

SYSTEMA NERVORUM
PERIPHERICUM

THE
PERIPHERAL NERVOUS SYSTEM

NERVI CEREBRALES

CRANIAL NERVES

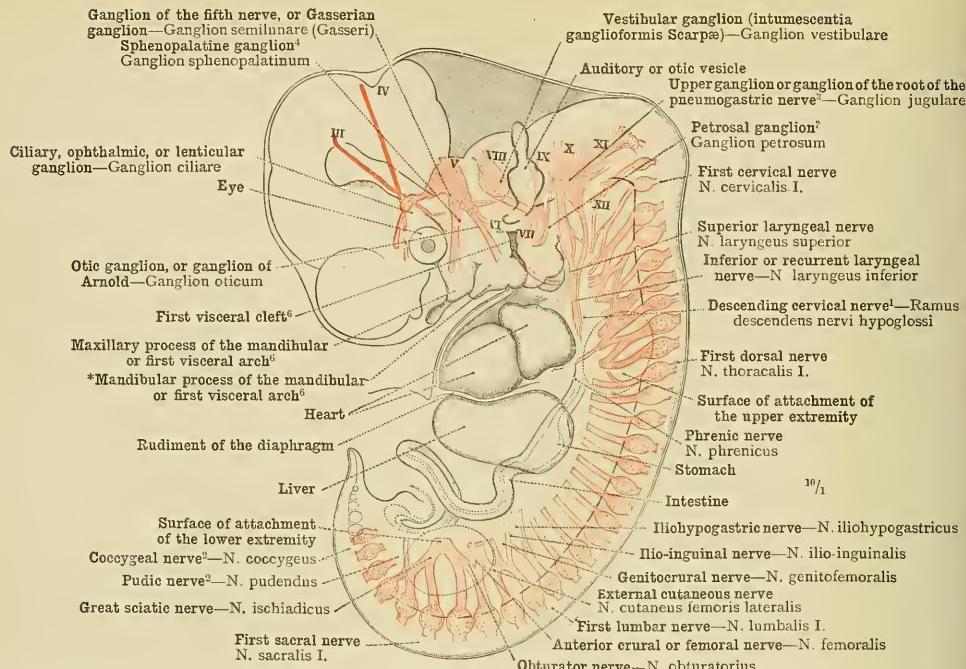


FIG. 1296.—RUDIMENT OF THE CEREBROSPINAL NERVOUS SYSTEM IN A HUMAN EMBRYO HAVING A BODY-LENGTH OF $\frac{5}{8}$ INCH (10.2 MILLIMETRES). ABOUT THE THIRTY-SECOND DAY OF INTRA-UTERINE LIFE. AFTER W. HIS.

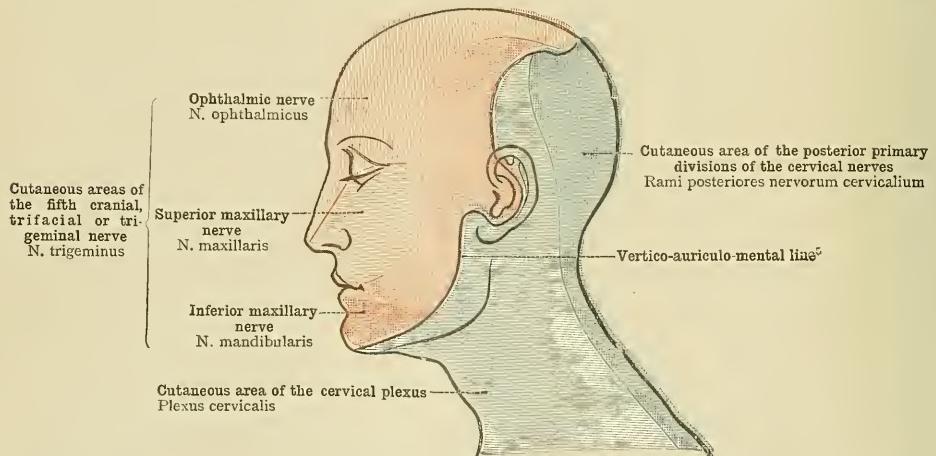


FIG. 1297.—THE CUTANEOUS AREAS OF THE FIFTH CRANIAL, TRIFACIAL, OR TRIGEMINAL NERVE, N. TRIGEMINUS, AND ITS THREE DIVISIONS.

¹ Often called the *descendens noni nerve*. See Appendix, note 430.
² Known also as *Meckel's ganglion* and as the *nasal ganglion*.
⁷ Also known as *Andersch's ganglion*.

² See Appendix, note 438.
⁵ See note ¹ to p. 811.

³ See Appendix, note 447.
⁶ See Appendix, note 448.

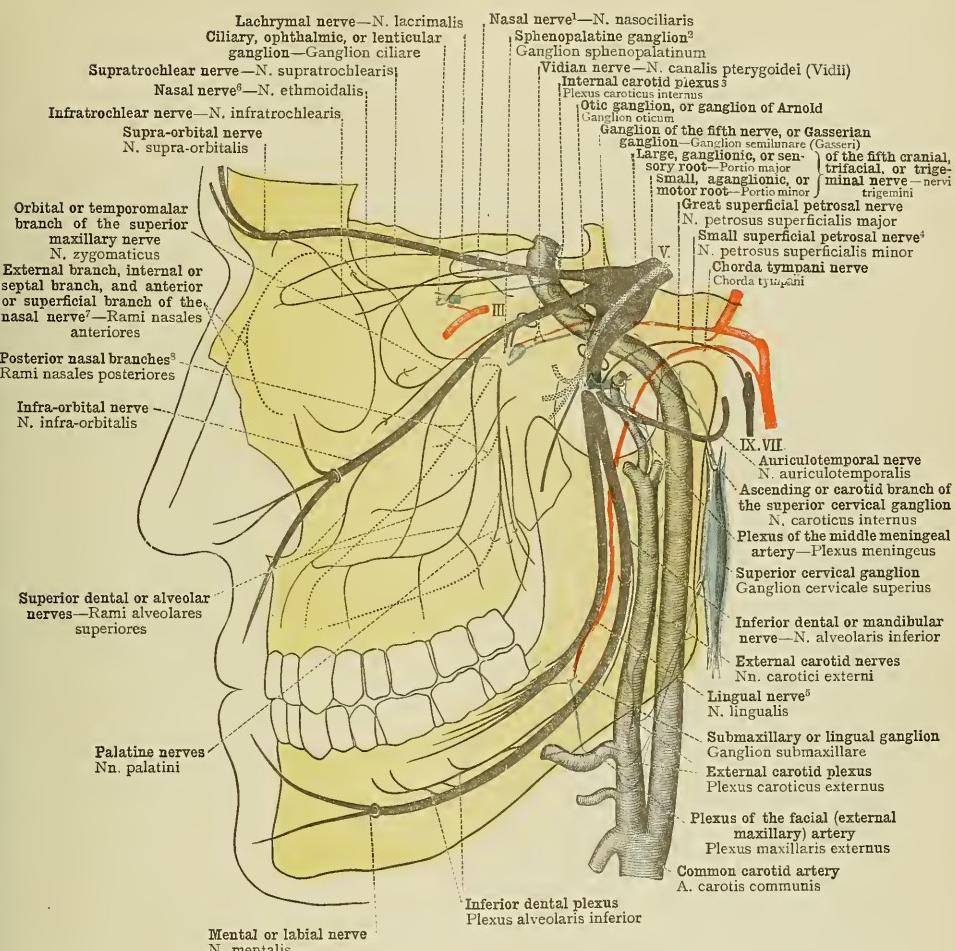


FIG. 1298.—THE FIFTH CRANIAL, TRIGEMINAL, OR TRIFACIAL NERVE, N. TRIGEMINUS; DIAGRAMMATIC REPRESENTATION OF ITS DISTRIBUTION AND OF ITS PRINCIPAL COMMUNICATIONS.

The nerves tinted red are the third cranial or common oculomotor nerve, nervus oculomotorius (III.), and the seventh cranial or facial nerve, nervus facialis (VII.); the Roman numeral V. indicates the root of the trigeminal nerve, the numeral IX., indicates the glossopharyngeal nerve. The ganglia connected with the trigeminal nerve are tinted blue; blue also are those parts of the sympathetic nervous system that appear in the figure.

* Known also as the *oculonasal* and as the *nasociliary nerve*.

² Known also as *Meckel's ganglion* and as the *nasal ganglion*.

³ *Carotid Plexus*.—In England the plexus of nerves surrounding the internal carotid artery is often spoken of as the *carotid plexus* without qualification.

⁴ By Arnold called the *long root of the otic ganglion*.

⁵ See Appendix, note 449.

⁷ The terminal branches of the *nervus ethmoidalis anterior* of the German nomenclature. See Appendix, note 449.

⁸ See Appendix, note 450.

² Formerly known also as the *gustatory nerve*.

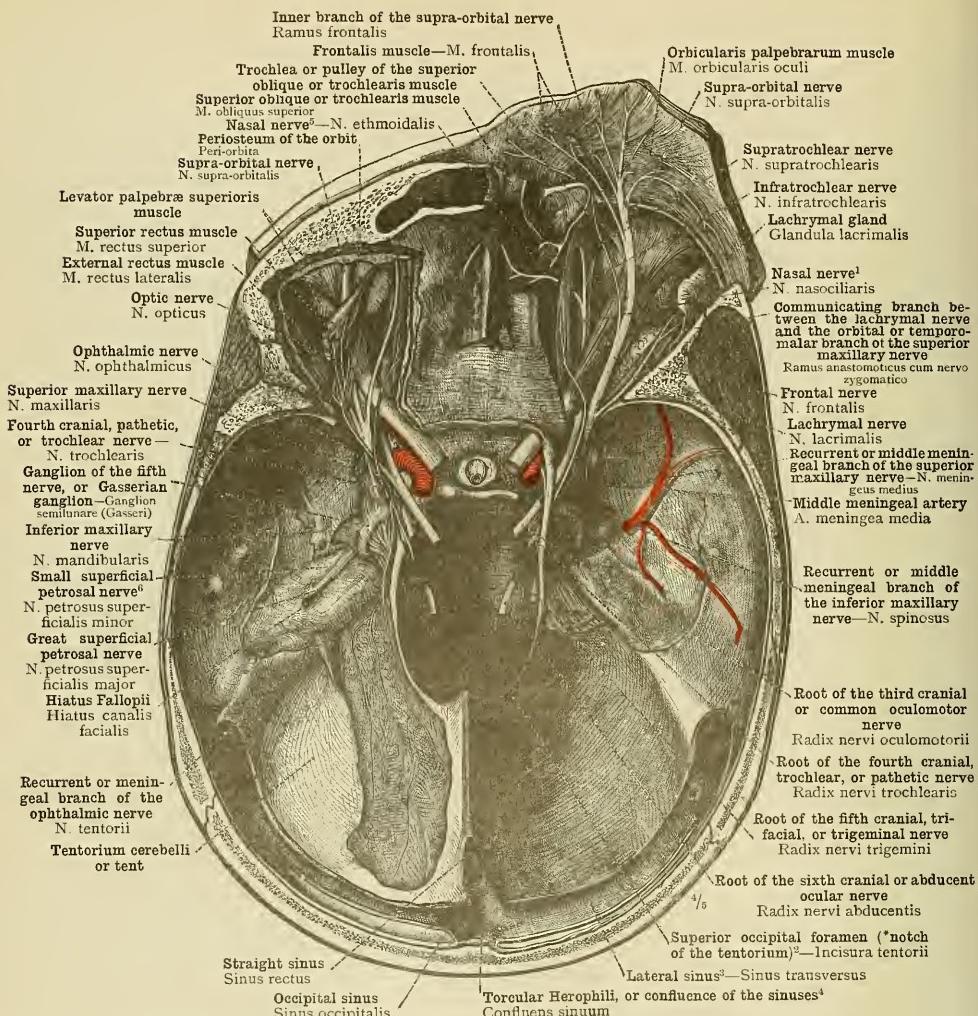
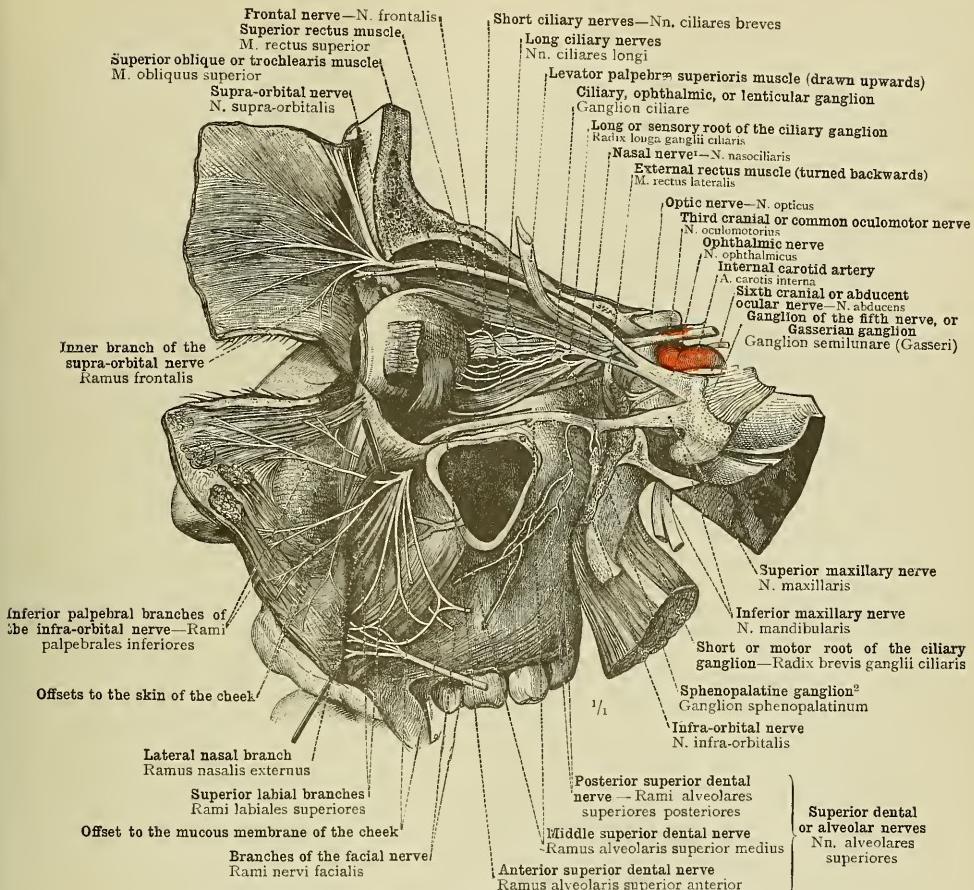
^a Known also as the oculomotor and as the nasociliary nerve.^b In this specimen the somewhat exceptional condition of a true *confluence* is exhibited.^c See Appendix, note 449.^d By Arnold called the *long root of the optic ganglion*.^e See Appendix, note 412.^f See Appendix to Part V., note 266.

FIG. 1299.—THE OPHTHALMIC NERVE, N. OPHTHALMICUS, OR FIRST DIVISION OF THE FIFTH CRANIAL, TRIGEMINAL, OR TRIGEMINUS, N. TRIGEMINUS, AND ALSO THE UPPER BRANCH OF THE THIRD CRANIAL OR COMMON OCULOMOTOR NERVE, RAMUS SUPERIOR NERVI OCULOMOTORII, AND THE FOURTH CRANIAL, PATHETIC, OR TROCHLEAR NERVE, N. TROCHLEARIS, DISPLAYED BY THE REMOVAL OF THE UPPER WALL OF THE ORBIT, THE NERVES OF THE DURA MATER: THE RECURRENT OR MENINGEAL BRANCH OF THE OPHTHALMIC NERVE, N. TENTORII (WITH REGARD TO THE ORIGIN OF THIS NERVE, FIG. 1304 SHOULD BE EXAMINED); THE RECURRENT OR MIDDLE MENINGEAL BRANCH OF THE SUPERIOR MAXILLARY NERVE, N. MENINGEUS MEDIUS; AND THE RECURRENT OR MIDDLE MENINGEAL BRANCH OF THE INFERIOR MAXILLARY NERVE, N. SPINOSUS.

On the left side of the body the upper margin of the orbit has been left intact, but the levator palpebrae superioris and superior rectus muscles have on this side been detached from their origins and turned outwards, in order to show the branches of the third cranial or common oculomotor nerve that enter these muscles.



¹ Known also as the *nasociliary* and as the *oculonasal nerves*.

² The *quadratus labii superioris* muscle of Continental anatomists comprises three muscles in the English nomenclature, viz., the levator labii superioris alaeque nasi, levator labii superioris proprius, and zygomaticus minor. See Fig. 545, p. 300, in Part III.

FIG. 1300.—THE SUPERIOR MAXILLARY NERVE, N. MAXILLARIS, OR SECOND DIVISION OF THE FIFTH CRANIAL, TRIFACIAL, OR TRIGEMINAL NERVE, N. TRIGEMINUS, AND ITS CONNEXION WITH THE SPHENOPALATINE GANGLION (MECKEL'S GANGLION, OR THE NASAL GANGLION), GANGLION SPHENOPALATINUM, BY MEANS OF THE TWO SPHENOPALATINE NERVES, NN. SPHENOPALATINI. THE SUPERIOR DENTAL OR ALVEOLAR NERVES, NN. ALVEOLARES SUPERIORES. THE FACIAL RADIATION OF THE TERMINAL BRANCHES OF THE INFRA-ORBITAL NERVE, WHICH, BY THEIR UNION WITH THE INFRA-ORBITAL BRANCHES OF THE FACIAL NERVE, FORM THE INFRA-ORBITAL PLEXUS. IN CONNEXION WITH THE OPHTHALMIC NERVE, OR FIRST DIVISION OF THE FIFTH CRANIAL NERVE, THE FRONTAL NERVE, N. FRONTALIS, AND THE CILIARY, OPHTHALMIC, OR LENTICULAR GANGLION CILIARE, WITH THE CILIARY NERVES, NN. CILIARES, THAT ENTER THE EYEBALL, ARE DISPLAYED. LEFT SIDE OF FACE, SEEN FROM THE LEFT SIDE.

The skin of the forehead and the cheek and the superficial facial muscles have been dissected up and turned forwards.

This having been done, the lower jaw was removed, and the outer wall of the orbit and the outer wall of the skull were cut away until the sphenomaxillary fossa, fossa pterygo-palatina, was reached. The levator palpebrae superioris and external rectus muscles have been cut across and their proximal segments turned backwards. The quadratus labii superioris muscle (see note 3 above), which covers the infra-orbital plexus, has been drawn forward with a hook.

Trigeminus Group.

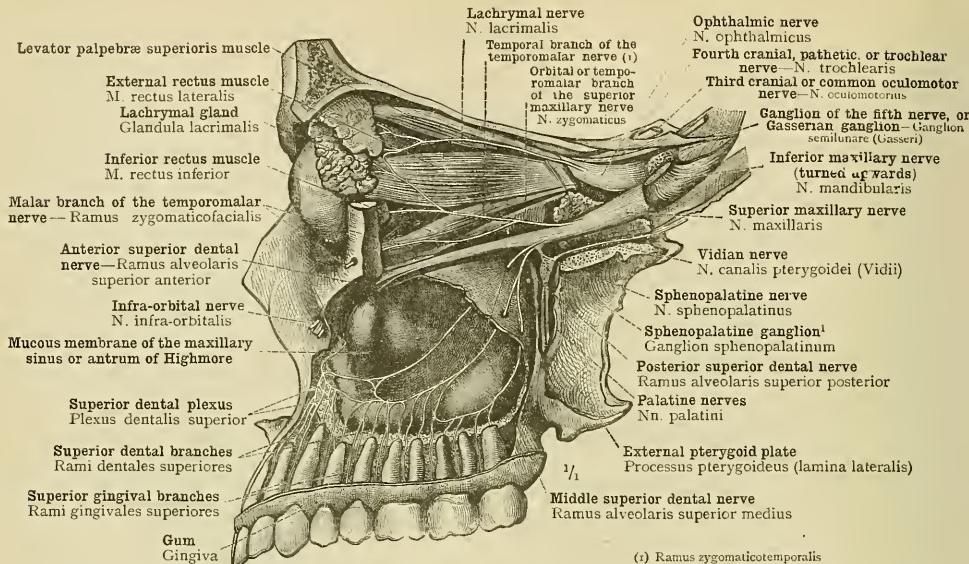


FIG. 1301.—THE SUPERIOR DENTAL OR ALVEOLAR NERVES, *Nn. ALVEOLARES SUPERIORES*, WITH THE SUPERIOR DENTAL PLEXUS, *PLEXUS DENTALIS SUPERIOR*, AND THE SUPERIOR DENTAL AND SUPERIOR GINGIVAL BRANCHES, *RAMI DENTALES SUPERIORES ET RAMI GINGIVALES SUPERIORES*, DISPLAYED BY THE REMOVAL OF THE OUTER LAMELLA OF THE SUPERIOR MAXILLARY BONE. THE OPTICAL OR TEMPOROMALAR BRANCH OF THE SUPERIOR MAXILLARY NERVE, *N. ZYGOMATICUS*, AND ITS COMMUNICATION WITH THE LACHRYMAL NERVE, *N. LACRIMALIS*. LEFT SIDE OF THE FACE, SEEN FROM THE LEFT SIDE.

In the maxillary sinus or antrum of Highmore the outer surface of the mucous membrane is exposed.

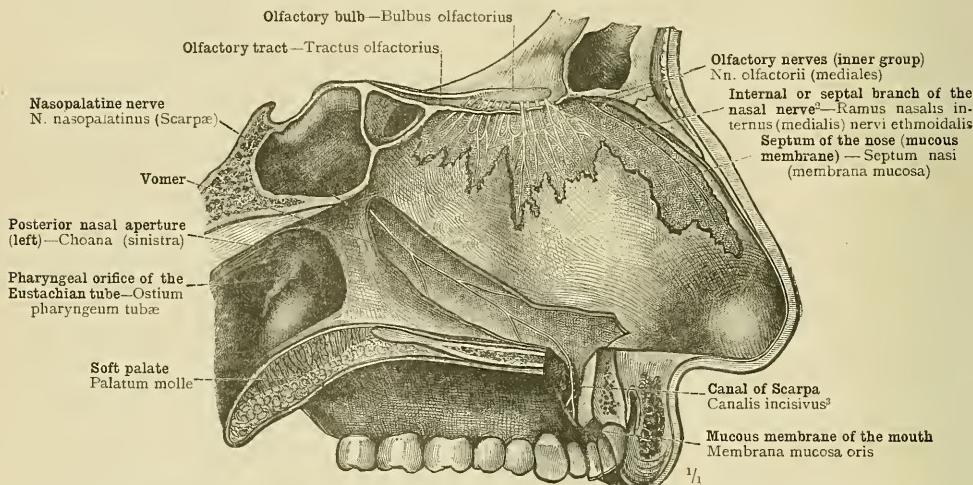


FIG. 1302.—THE OLFACTORY NERVES, *Nn. OLFACTORII*, THE INTERNAL OR SEPTAL BRANCH OF THE NASAL NERVE, *RAMUS NASALIS INTERNUS (MEDIALES) NERVI ETHMOIDALIS*, AND THE NASOPALATINE NERVE, *N. NASOPALATINUS*, A BRANCH OF THE SPHENOPALATINE GANGLION (MECKEL'S GANGLION OR THE NASAL GANGLION), *GANGLION SPHENOPALATINUM*.

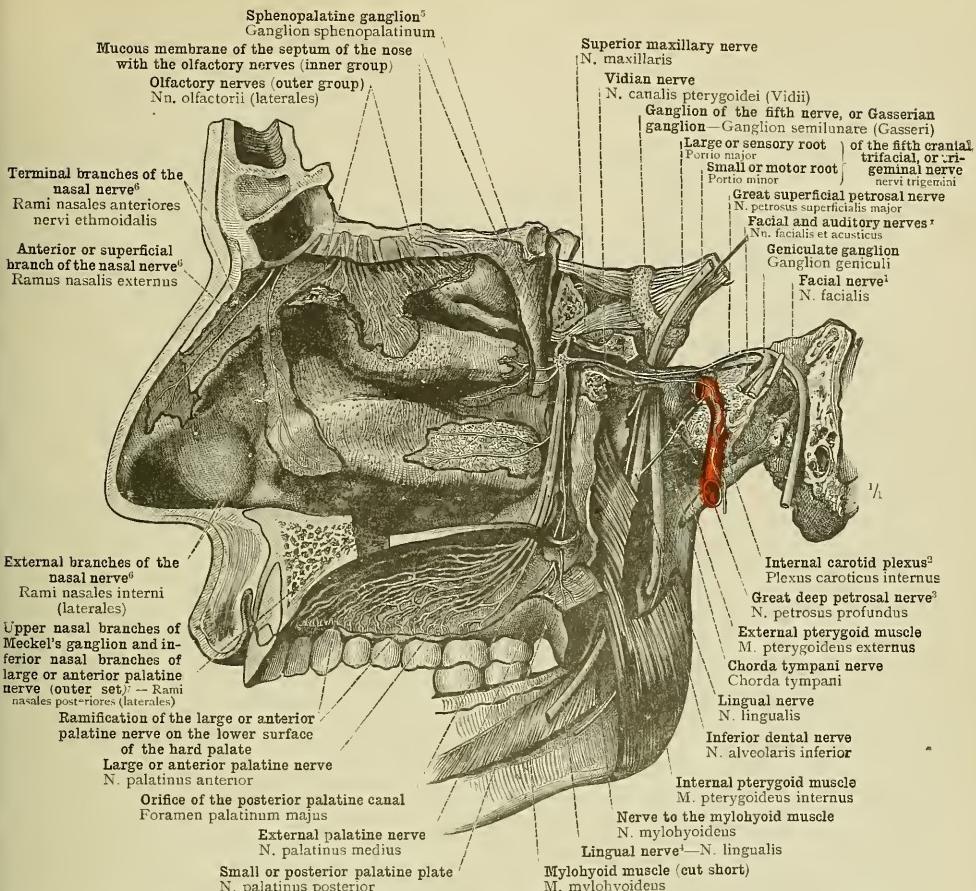
These nerves have been laid bare on the right side of the nasal septum by the partial removal of the mucous membrane.

¹ Known also as *Meckel's ganglion* and as the *nasal ganglion*.

² See Appendix, note 449.

³ See Appendix, note 451.

Trigeminus Group.—*Nn. olfactorii*—The olfactory nerves.



¹ In Soemmerring's enumeration the *facialis* is the seventh, the auditory the eighth cranial nerve; in that of Willis, the former is the *tortrix dura*, the latter the *porto molvis*, of the seventh cranial nerve.

² See note ³ to p. 459. ³ See Appendix, note 42.

⁴ Known also as *Meckel's ganglion*, and as the *nasal ganglion*.

⁵ Formerly known also as the *gustatory nerve*.

⁶ See Appendix, note 44. ⁷ See Appendix, note 45.

FIG. 1303.—THE SPHENOPALATINE GANGLION (MECKEL'S GANGLION, OR THE NASAL GANGLION), GANGLION SPHENOPALATINUM. THE ROOTS OF THIS GANGLION: THE SPHENOPALATINE NERVES, NN. SPHENOPALATINI FORMING THE SENSORY ROOT; THE WHITE PORTION OF THE VIDIAN NERVE, N. CANALIS PTERYGOIDEI (VIDII), VIZ., THE GREAT SUPERFICIAL PETROSAL NERVE, N. PETROSUM SUPERFICIALIS MAJOR, FORMING THE MOTOR ROOT; AND THE GREY PORTION OF THE VIDIAN NERVE, VIZ., THE GREAT DEEP PETROSAL NERVE, N. PETROSUM PROFUNDUS, FORMING THE SYMPATHETIC ROOT. THE SPHENOPALATINE RADIATION OF THE SUPERIOR MAXILLARY NERVE, N. MAXILLARIS, IN THE FORM OF BRANCHES OF MECKEL'S GANGLION. THE UPPER AND LOWER (POSTERIOR) NASAL BRANCHES, RAMI NASALES POSTERIORES (see Appendix, note 450), AND THE PALATINE NERVES, NN. PALATINI. THE ANTERIOR OR SUPERFICIAL BRANCH, THE EXTERNAL BRANCH, AND THE INTERNAL OR SEPTAL BRANCH OF THE NASAL NERVE, RAMI NASALES ANTERIORES (LATERALES) NERVI ETHMOIDALIS. THE EMERGENCE FROM THE FORAMEN OVALE OF THE INFERIOR MAXILLARY NERVE, N. MANDIBULARIS, OR THIRD DIVISION OF THE FIFTH CRANIAL, TRIFACIAL, OR TRIGEMINAL NERVE, AND THE UNION OF THE LINGUAL NERVE WITH THE CHORDA TYMPANI NERVE. THE RAMIFICATION OF THE OLFACTORY NERVES (OUTER GROUP), NN. OLFACTORII (LATERALES), ON THE SUPERIOR AND MIDDLE TURBINATE BONES OF THE NOSE.

In the right half of a sagittally hemisectioned head, the tongue, the greater part of the soft palate, and the pharynx were removed; the middle portion of the base of the skull was then cut away until the carotid canal was reached, and this canal as well as the Vidian canal, the internal auditory meatus, and the aqueduct of Fallopia, were opened. The ganglion of the fifth nerve or Gasserian ganglion, ganglion semilunare, was turned outwards, in order to display the small or motor root of the trigeminal nerve, portio minor nervi trigemini, which runs along the under surface of the ganglion. Of the mucous membrane of the septum of the nose a narrow strip has been preserved, on the upper part of which the olfactory nerves of the inner group are visible.

Trigeminus Group.—Nn. olfactorii—The olfactory nerves.

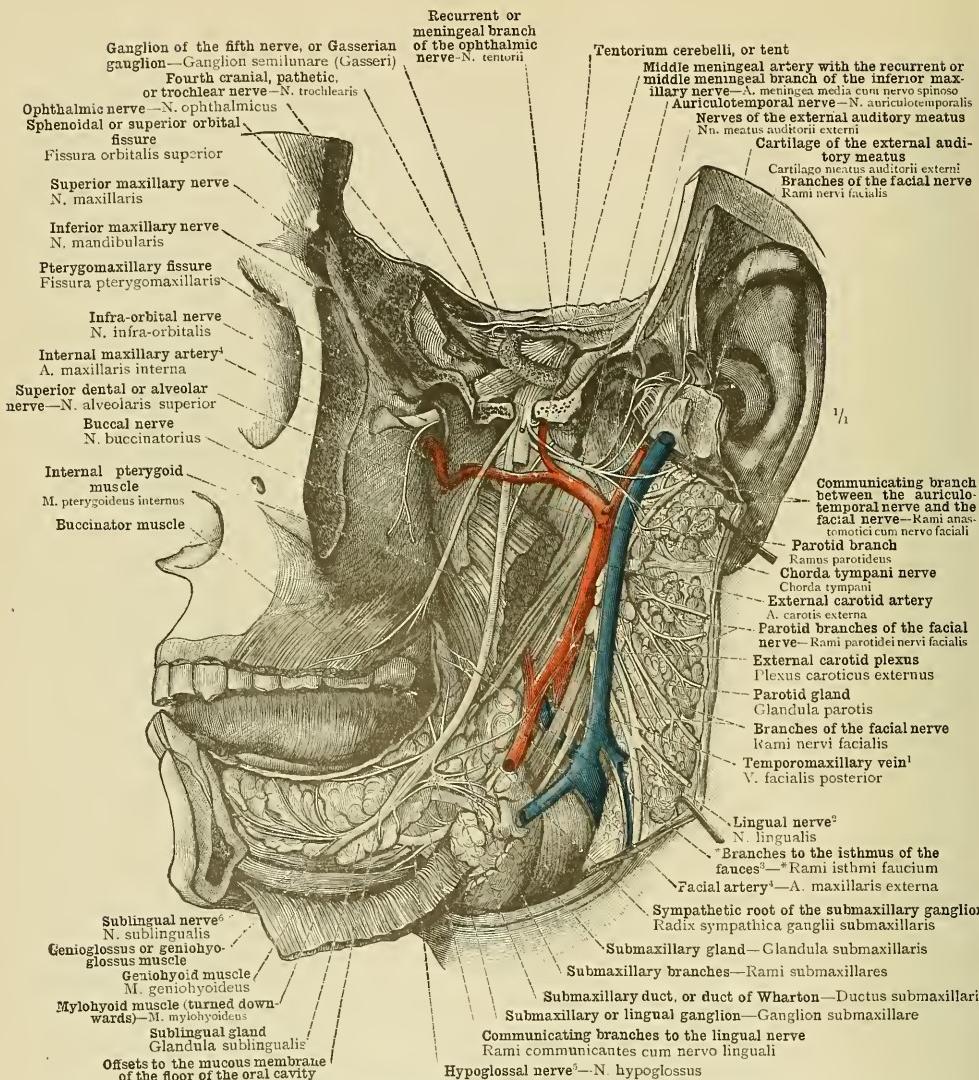


FIG. 1304.—THE INFERIOR MAXILLARY NERVE, N. MANDIBULARIS, OR THIRD DIVISION OF THE FIFTH CRANIAL, TRIFACIAL, OR TRIGEMINAL NERVE, N. TRIGEMINUS. ITS MOTOR BRANCHES AND ALSO THE INFERIOR DENTAL OR ALVEOLAR NERVE, N. ALVEOLARIS INFERIOR, HAVE BEEN CUT SHORT CLOSE TO THE BASE OF THE SKULL.

On the left side of the head in front of the ear the parotid gland was removed through a vertical incision, the left half of the inferior maxillary bone was taken away, and between the malar bone and the external auditory meatus a wedge-shaped piece of the base of the skull, the apex of which was at the foramen ovale, was removed by two saw-cuts. The hinder portion of the parotid gland has been turned backwards with the superimposed skin.

¹ Sometimes called the *posterior facial vein*. See Appendix to Part V., note 2².

² Formerly known also as the *gustatory nerve*.

³ Neither in the nomenclature of Quain nor in that of Macalister are the ⁴branches to the *isthmus of the fauces* distinguished by name from the other branches furnished by the lingual nerve to the mucous membrane of the mouth.

⁴ See Appendix to Part V., note 18⁵.

⁵ Twelfth cranial nerve in Sömmering's enumeration, ninth cranial nerve in that of Willis; sometimes also known as the *lingual motor nerve*.

⁶ See Appendix, note 453.

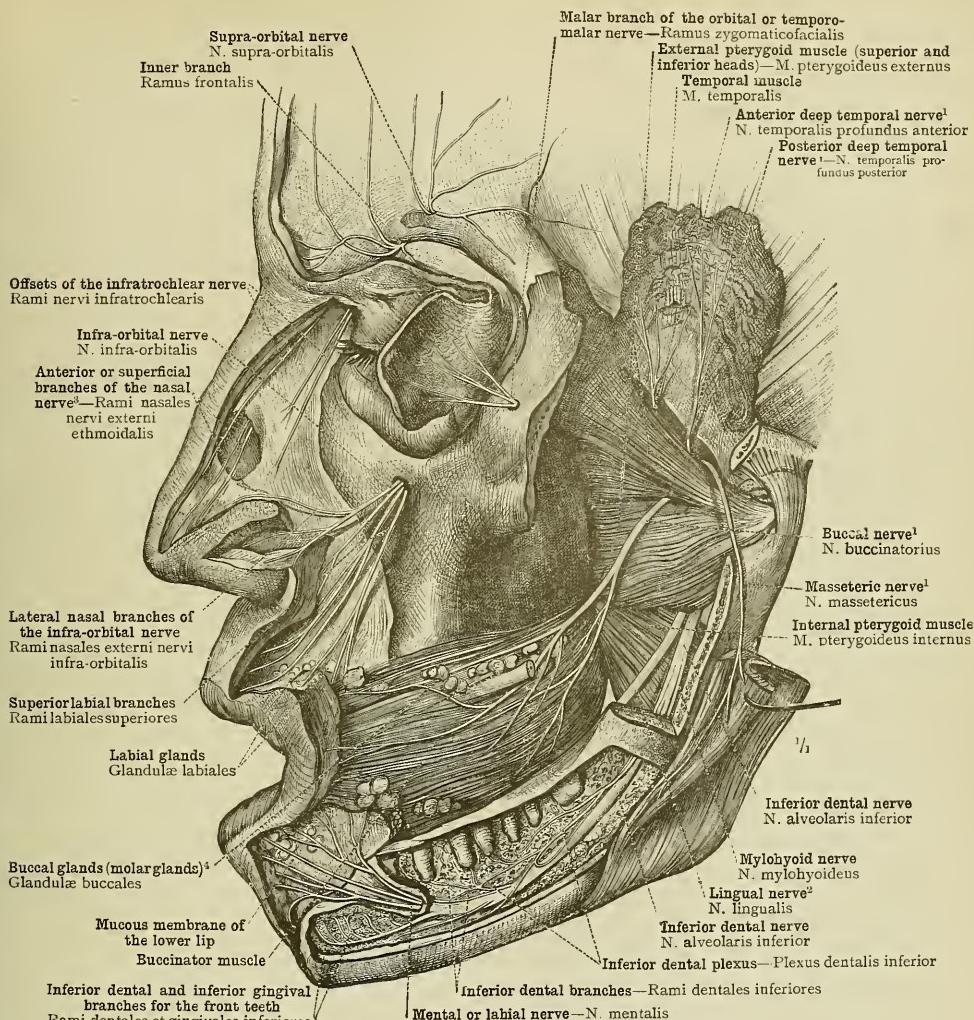
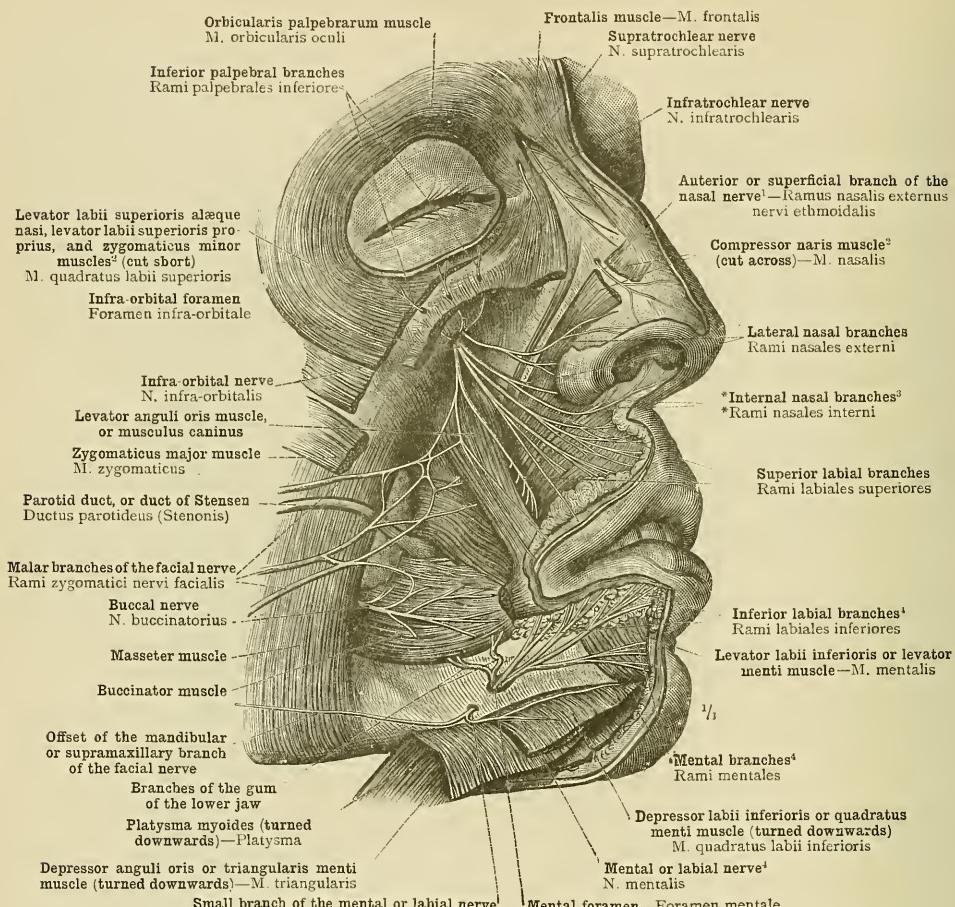


FIG. 1303.—THE INFERIOR DENTAL NERVE, N. ALVEOLARIS INFERIOR; ITS COURSE THROUGH THE MANDIBULAR OR INFERIOR DENTAL CANAL, WITH THE INFERIOR DENTAL PLEXUS, PLEXUS DENTALIS INFERIOR, AND ITS TERMINAL BRANCH, THE MENTAL OR LABIAL NERVE, N. MENTALIS. THE BUCCAL NERVE, N. BUCINATORIUS. OF THE MOTOR BRANCHES OF THE INFERIOR MAXILLARY NERVE, N. MANDIBULARIS, THE ANTERIOR AND POSTERIOR DEEP TEMPORAL NERVES, NN. TEMPORALES PROFUNDI ANTERIOR ET POSTERIOR (see Appendix, note ⁴⁵⁴), AND THE MASSETERIC NERVE, N. MASSETERICUS. ARE SEEN. THE MALAR BRANCH OF THE ORBITAL OR TEMPOROMALAR NERVE, RAMUS ZYGOMATICOFACIALIS NERVI ZYGMATICI; THE SUPERIOR LABIAL AND LATERAL NASAL BRANCHES OF THE INFRA-ORBITAL NERVE, RAMI LABIALES SUPERIORES ET RAMI NASALES EXTERNI NERVI INFRA-ORBITALIS; AND THE ANTERIOR OR SUPERFICIAL BRANCHES OF THE NASAL NERVE, RAMI NASALES EXTERNI NERVI ETHMOIDALIS. THE BRANCHES OF THE OPHTHALMIC NERVE TO THE SKIN OF THE FRONTAL REGION.

The parts were exposed by the removal of the zygomatic arch, the front of the ramus of the inferior maxillary bone, and the outer compact lamella of the body of that bone. In order to display the deep temporal nerves, the lower part of the temporal muscle was cut away.



1 See Appendix, note 459 and note 7 to p. 859.

2 See note 4 to p. 303, in Part III.

3 See Appendix, note 455.

4 See Appendix, note 456.

FIG. 1306.—PART OF THE FACIAL RADIATION OF THE SUPERIOR MAXILLARY NERVE, N. MAXILLARIS (THE INFRA-ORBITAL PLEXUS), WITH THE CUTANEOUS NERVES OF THE NOSE AND THE NERVES OF THE UPPER AND LOWER LIPS: THE BRANCHES OF THE INFRA-ORBITAL NERVE TO THE SKIN OF THE CHEEK, THE ALA OF THE NOSE, THE SEPTUM OF THE NOSE, AND THE LOWER LID: SUPERIOR LABIAL BRANCHES (RAMI LABIALES SUPERIORES), LATERAL NASAL AND *INTERNAL NASAL BRANCHES (RAMI NASALES EXTERNI ET INTERNI—see Appendix, notes 459, 456, and note 7 to p. 859), AND INFERIOR PALPEBRAL BRANCHES (RAMI PALPEBRALES INFERIORES). THE COMMUNICATIONS BETWEEN THESE NERVES AND THE BRANCHES OF THE FACIAL NERVE. THE DISTRIBUTION OF THE SUPRATROCHLEAR NERVE, N. SUPRATROCHLEARIS, AND THE INFRATROCHLEAR NERVE, N. INFRATROCHLEARIS, BRANCHES OF THE FIRST DIVISION OF THE FIFTH NERVE; AND THE TERMINAL RAMIFICATION OF THE BUCCAL NERVE, N. BUCCINATORIUS, AND THE MENTAL OR LABIAL NERVE, N. MENTALIS, BRANCHES OF THE THIRD DIVISION OF THE FIFTH NERVE. A SMALL BRANCH OF THE MENTAL NERVE WHICH EMERGES FROM THE INFERIOR MAXILLARY BONE BY A SPECIAL APERTURE IS SEEN TO COMMUNICATE WITH THE MANDIBULAR OR SUPRAMAXILLARY BRANCH OF THE FACIAL NERVE.

Preparation of the right side of the face after removing the skin and the superficial layer of the muscles of the face. The compressor naris muscle has been cut across, in order to display the emergence on to the outer surface of the nose of the anterior or superficial branch of the nasal nerve (ramus nasalis externus nervi nasociliaris).

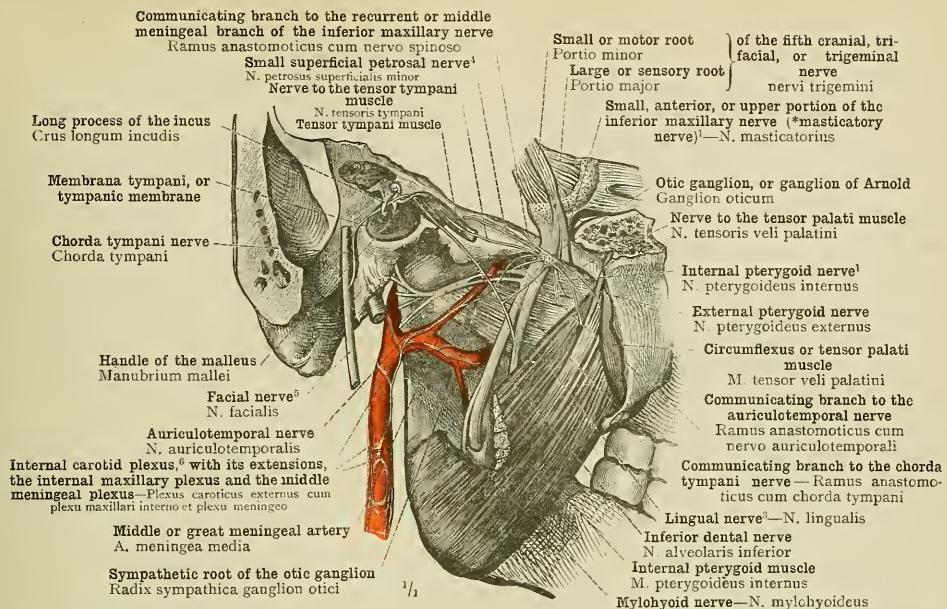


FIG. 1307.—THE OTIC GANGLION OR GANGLION OF ARNOLD, GANGLION OTICUM; ITS ROOTS AND BRANCHES, DISPLAYED ON THE LEFT SIDE OF THE HEAD, AND VIEWED FROM WITHIN.

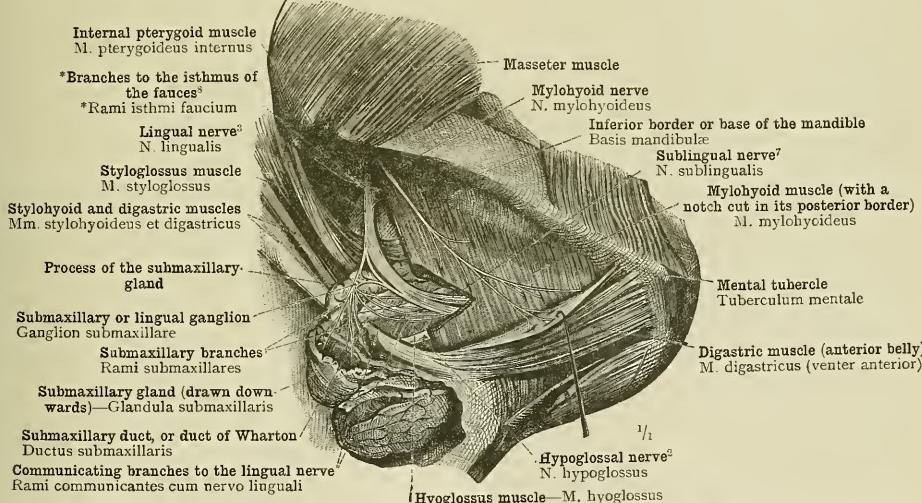


FIG. 1308.—THE SUBMAXILLARY OR LINGUAL GANGLION, GANGLION SUBMAXILLARE, AND ITS BRANCHES, WITH THE MYLOHYOID NERVE, DISPLAYED IN THE RIGHT SUBMAXILLARY REGION. SEEN OBLIQUELY FROM BELOW.

The submaxillary gland has been shelled out of its bed and drawn downwards.

¹ See Appendix, note 457.

² Twelfth cranial nerve in Soemmerring's enumeration, ninth in that of Willis; known also as the *lingual motor nerve*.

³ Fifth cranial nerve in the greater number of enumerations.

⁴ By Arnold called the *long root of the otic ganglion*. See also Appendix, note 452.

⁵ Seventh cranial nerve in Soemmerring's enumeration; *portio dura* of the seventh cranial nerve in that of Willis.

⁶ See note 3 to p. 859.

⁷ See Appendix, note 413.

⁸ See note 3 to p. 864.

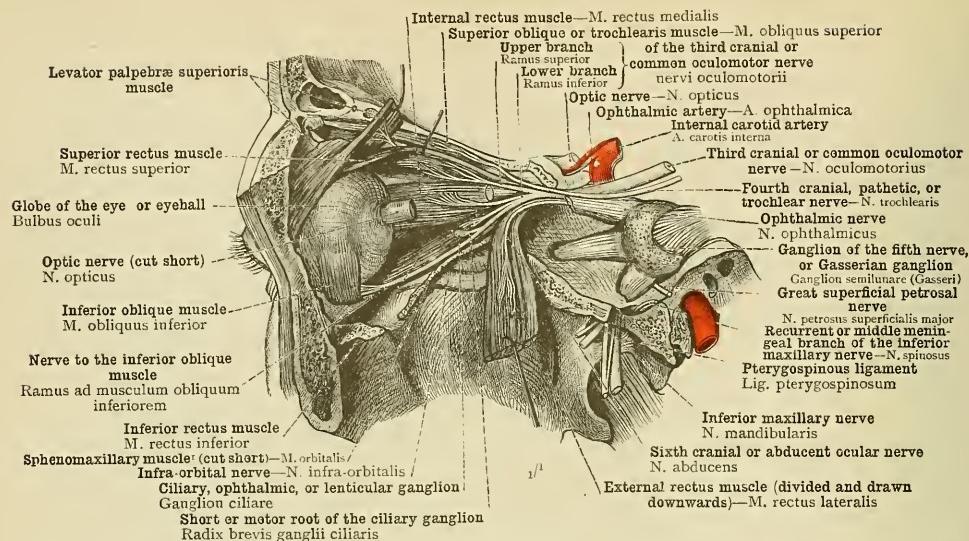


FIG. 1309.—THE NERVES OF THE EXTERNAL MUSCLES OF THE EYE: THIRD CRANIAL OR COMMON OCULOMOTOR NERVE, N. OCULOMOTORIUS, FOURTH CRANIAL, PATHETIC, OR TROCHLEAR NERVE, N. TROCHLEARIS, AND SIXTH CRANIAL OR ABDUCENT OCULAR NERVE, N. ABDUCENS, DISPLAYED BY THE REMOVAL OF THE OUTER AND UPPER WALLS OF THE LEFT ORBIT.

The levator palpebrae superioris and external rectus muscles have been cut across and turned aside.

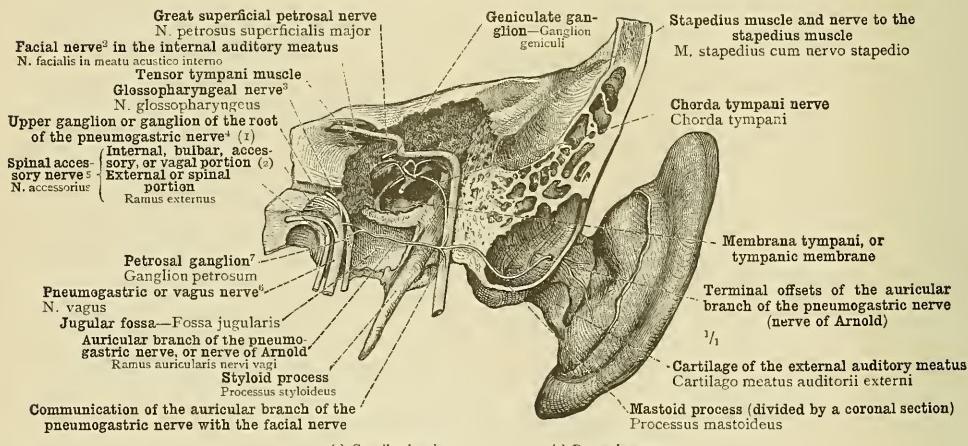


FIG. 1310.—THE FACIAL NERVE, N. FACIALIS (see note² below); ITS COURSE THROUGH THE AQUEDUCT OF FALLOPIUS, WITH THE BRANCHES SUPPLIED BY THE NERVE DURING THIS PART OF ITS COURSE; DISPLAYED FROM BEHIND IN THE RIGHT PETROUS BONE. THE AURICULAR BRANCH OF THE PNEUMOGASTRIC NERVE OR NERVE OF ARNOLD, RAMUS AURICULARIS NERVI VAGI, AND THE COMMUNICATION BETWEEN THE GLOSSOPHARYNGEAL NERVE, N. GLOSSOPHARYNGEUS, AND THE AURICULAR BRANCH OF THE PNEUMOGASTRIC NERVE BY MEANS OF THE RAMUS ANASTOMOTICUS CUM RAMO AURICULARI NERVI VAGI.

¹ See Appendix, note 458.

² Seventh cranial nerve in Sommerring's enumeration; *portio dura* of the seventh cranial nerve in that of Willis.

³ Ninth cranial nerve in Sommerring's enumeration; first trunk of the eighth cranial nerve in that of Willis.

⁴ See Appendix, note 447.

⁵ Eleventh cranial nerve in Sommerring's enumeration; third trunk of the eighth cranial nerve in that of Willis.

⁶ Tenth cranial nerve in Sommerring's enumeration; second trunk of the eighth cranial nerve in that of Willis.

⁷ Also known as *Anderz's ganglion*.

Trigeminus Group.—Auricular Branch of the Pneumogastric Nerve, or Nerve of Arnold, Ramus Auricularis Nervi Vagi.

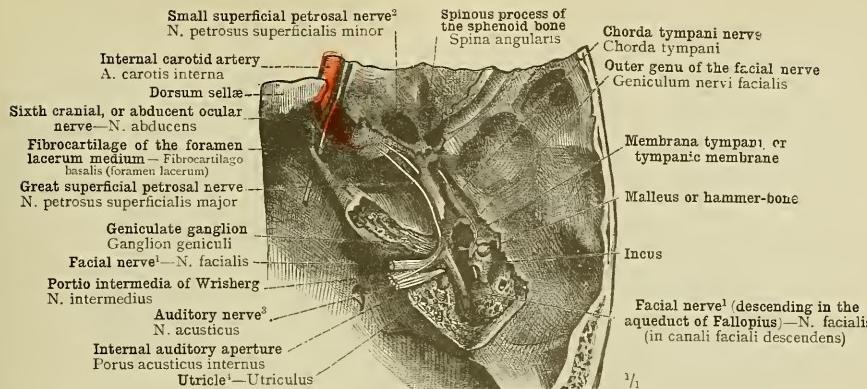


FIG. 1311.—THE CHORDA TYMPANI NERVE, CHORDA TYMPANI, AND THE GREAT SUPERFICIAL PETROSAL NERVE, N. PETROSUM SUPERFICIALIS MAJOR, DISPLAYED FROM ABOVE IN THE REGION OF THE RIGHT PETROSUM BONE, THE TYMPANIC CAVITY OR TYMPANUM AND THE INTERNAL AUDITORY MEATUS HAVING BEEN OPENED UP. THE PORTIO INTERMEDIA OF WRISEBERG, N. INTERMEDIUS, AND THE GENICULATE GANGLION, GANGLION GENICULI.

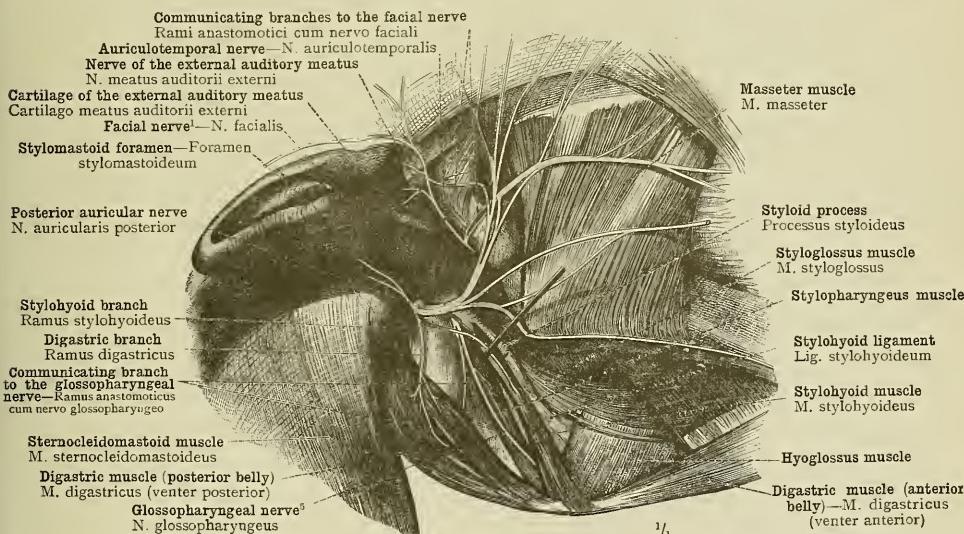


FIG. 1312.—THE EMERGENCE OF THE FACIAL NERVE, N. FACIALIS (see note 1 below), FROM THE STYLOMASTOID FORAMEN, FORAMEN STYLOMASTOIDEUM, ITS RAMIFICATION IN THE RETROMANDIBULAR FOSSA, FOSSA RETROMANDIBULARIS, AND ITS COMMUNICATING BRANCHES TO THE GLOSSOPHARYNGEAL NERVE, N. GLOSSOPHARYNGEUS, AND THE AURICULOTEMPORAL NERVE, N. AURICULOTEMPORALIS, DISPLAYED ON THE RIGHT SIDE OF THE HEAD BY THE COMPLETE REMOVAL OF THE PAROTID GLAND. THE COMMUNICATING BRANCH BETWEEN THE FACIAL NERVE AND THE GLOSSOPHARYNGEAL NERVE HAS THE FORM OF A LOOP, WHICH PERFORATES THE POSTERIOR BELLY OF THE DIGASTRIC MUSCLE. SEEN OBLIQUELY FROM BELOW.

¹ Seventh cranial nerve in Soemmering's enumeration; *portio dura* of the seventh cranial nerve in that of Willis.

² By Arnold called the *long root* of the *auricular ganglion*.

³ Eighth cranial nerve in Soemmering's enumeration; *portio molle* of the seventh cranial nerve in that of Willis.

⁴ Known also as the *common sinus* of the membranous semicircular canals.

⁵ Ninth cranial nerve in Soemmering's enumeration; *first trunk* of the eighth cranial nerve in that of Willis.

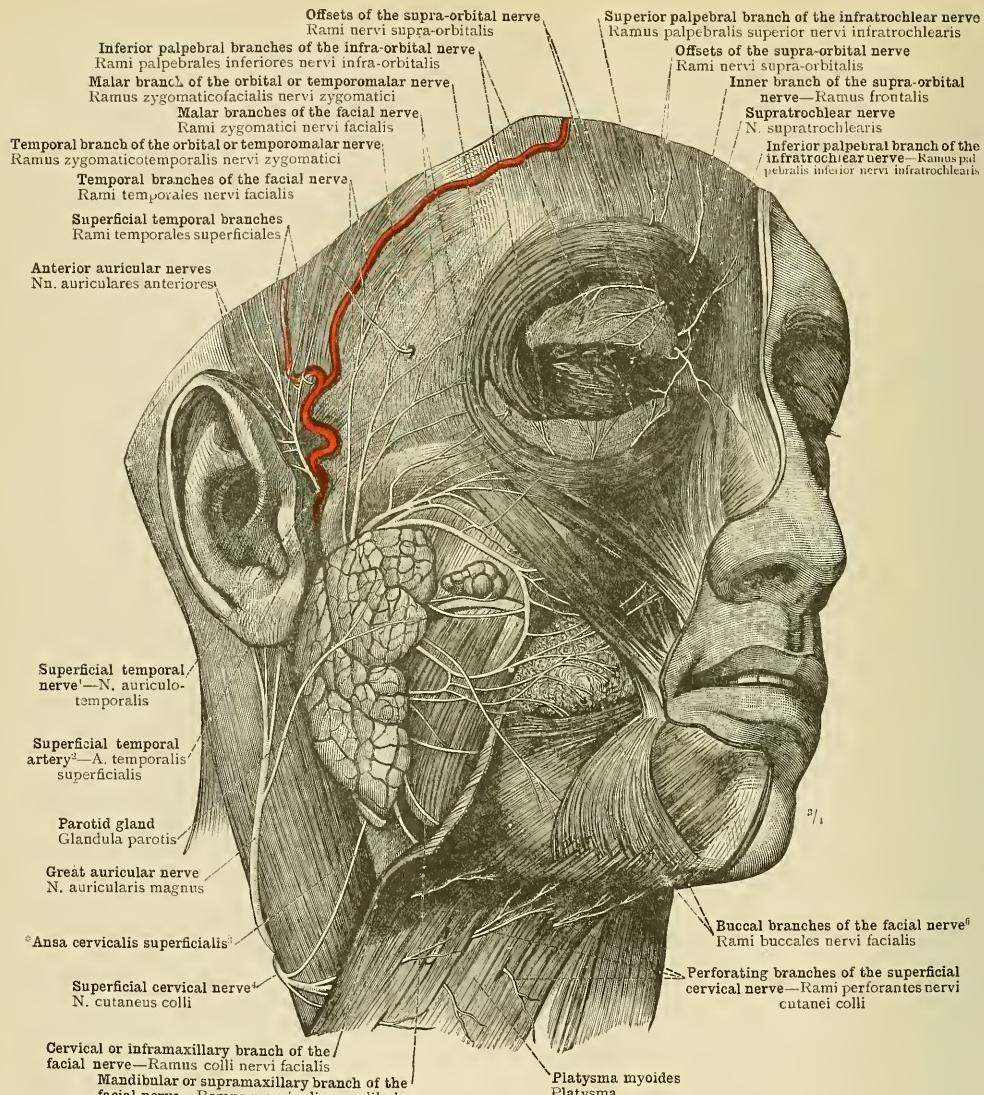


FIG. 1313.—THE FACIAL NERVE, N. FACIALIS; ITS BRANCHES AS FAR AS THEY ARE VISIBLE WHEN THE PAROTID GLAND, THE SUPERFICIAL MUSCLES OF THE FACE, AND THE BUCCAL FAT-PAD, CORPUS ADIPOSUM BUCCÆ (see note ⁵ below), ARE LEFT INTACT. RIGHT SIDE OF THE FACE. THE BRANCHES OF THE CERVICAL PLEXUS AND OF THE OPHTHALMIC NERVE, OR FIRST DIVISION OF THE FIFTH CRANIAL NERVE, TO THE FACE AND THE UPPER PART OF THE NECK; OF THE FACIAL BRANCHES OF THE SUPERIOR MAXILLARY NERVE, OR SECOND DIVISION OF THE FIFTH CRANIAL NERVE, THOSE OF THE ORBITAL OR TEMPOROMALAR NERVE, N. ZYGOMATICUS, HAVE ALONE BEEN PRESERVED.

In order to expose the course of the nerves supplying the eyelids, a part of the orbicularis palpebrarum muscle, *musculus orbicularis oculi*, which covers these nerves has been cut away.

¹ See Appendix, note 429.

² See Appendix to Part V., note 168.

³ By Macalister called the *superficialis colli nerve*.

⁴ The *buccal fat-pad* is sometimes, but inappropriately, named the *sucking-pad*.

⁵ Also called *inferior buccobranchial branches of the facial nerve*.

⁶ See Appendix, note 400.

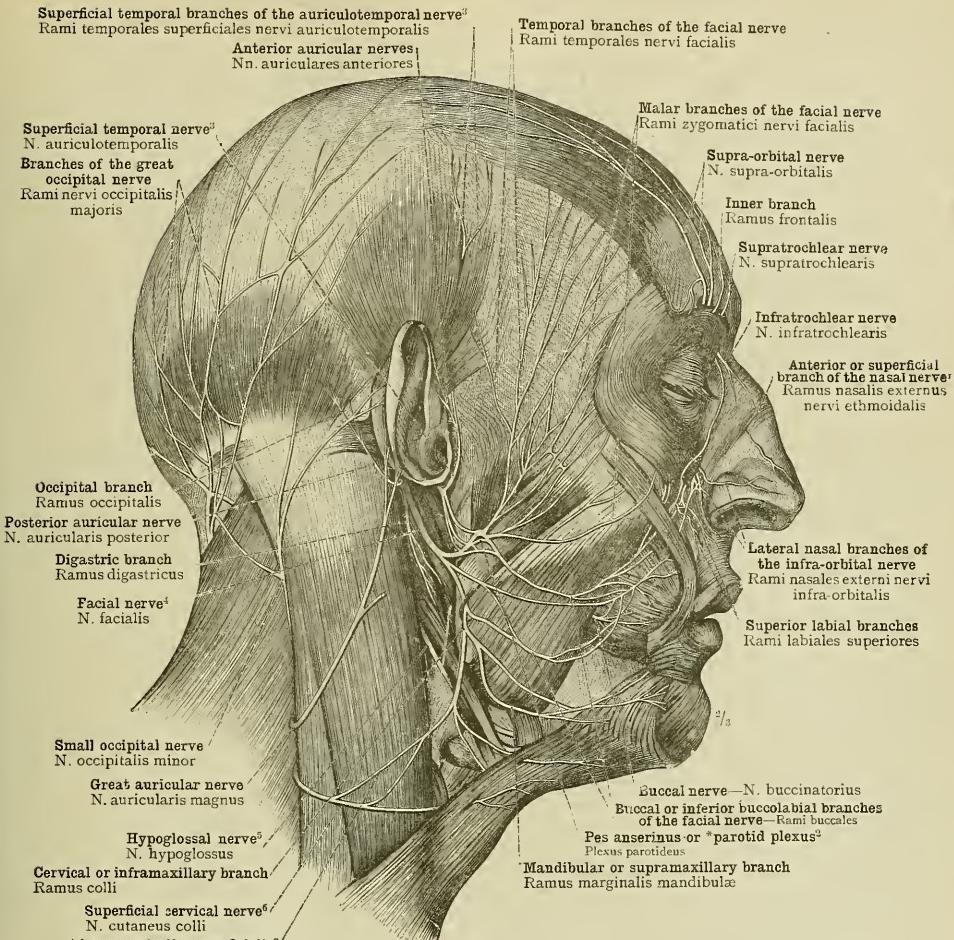


FIG. 1314.—THE RAMIFICATION OF THE FACIAL NERVE, N. FACIALIS (*see note⁴ below*), DISPLAYED BY THE REMOVAL OF THE PAROTID GLAND AND SOME OF THE SUPERFICIAL MUSCLES OF THE FACE. RIGHT SIDE OF THE FACE. THE COMMUNICATING BRANCHES FROM THE FACIAL NERVE TO THE AURICULOTEMPORAL NERVE, TO THE INFRA-ORBITAL NERVE, AND TO THE SUPERFICIAL CERVICAL NERVE (*see note⁶ below*). THE SENSORY NERVES OF THE FRONTAL REGION, OF THE SKIN OF THE NOSE, AND OF THE PINNA OR AURICLE; THE RAMIFICATION OF THE GREAT AND SMALL OCCIPITAL NERVES, NN. OCCIPITALES, MAJOR ET MINOR, ON THE BACK OF THE HEAD.

The upper part of the orbicularis palpebrarum muscle, musculus orbicularis oculi, and the lower part of the frontal muscle, musculus frontalis, have been removed, in order to display the branches of the frontal nerve, nervus frontalis, emerging from the orbit. The upper and back portions of the platysma myoides have also been removed, in order to display the communication between the facial nerve and the superficial cervical nerve (*ansa cervicalis superficialis—*see Appendix, note⁴*), and also the cervical or inframaxillary branch of the facial nerve. This latter branch has been drawn out of the interior of the retromandibular fossa by means of a hook.

¹ See Appendix, note 449 and note 7 to p. 850.

² See Appendix, note 461.

³ See Appendix, note 459.

⁴ Seventh cranial nerve in Soemmering's enumeration; *portio dura* of the seventh cranial nerve in that of Willis.

⁵ Twelfth cranial nerve in Soemmering's enumeration, ninth in that of Willis; also known as the *lingual motor nerve*.

⁶ By Macalister called the *superficialis colli nerve*.

⁷ See Appendix, note 453.

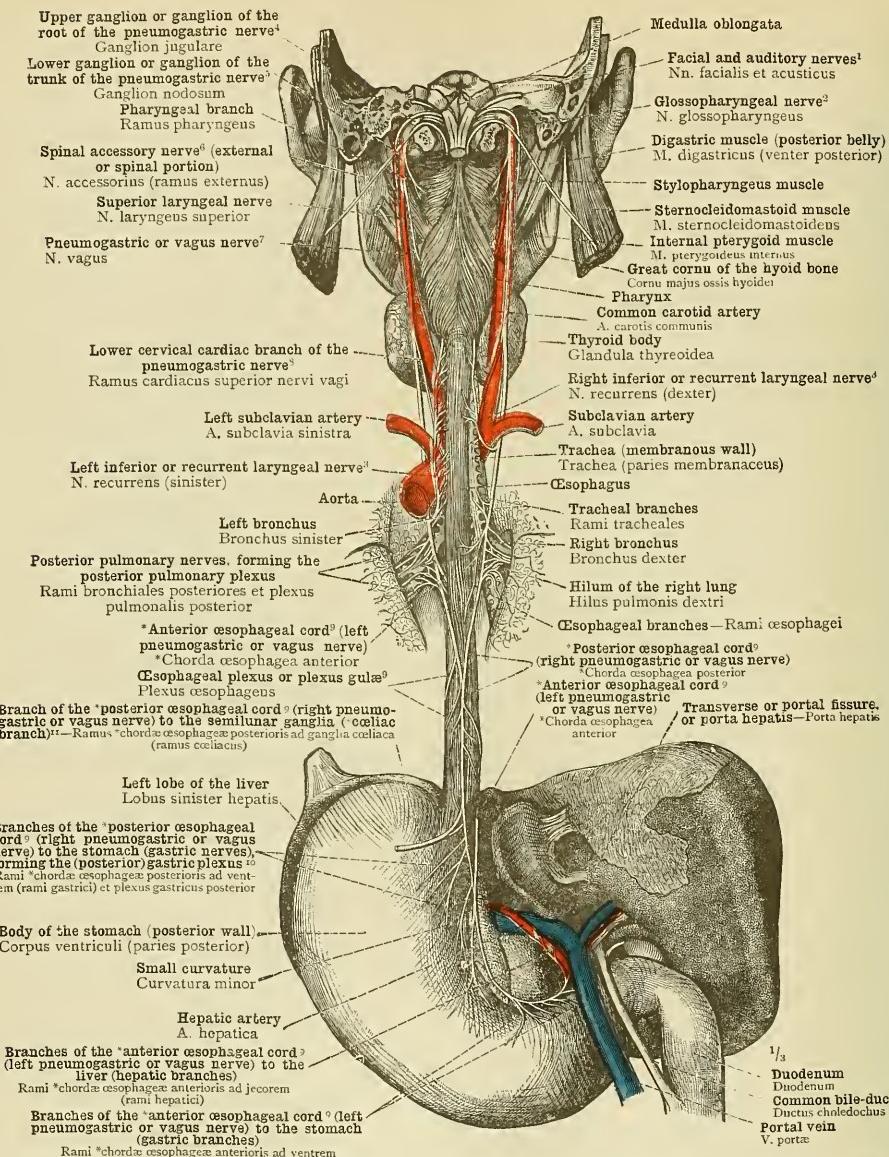


FIG. 1315.—THE PNEUMOGASTRIC OR VAGUS NERVE, N. VAGUS; VIEW OF ITS PRINCIPAL BRANCHES, AS SEEN FROM BEHIND IN RELATION TO THE VISCERA, WHICH HAVE BEEN REMOVED FROM THE BODY.

The course and distribution of the auricular branch of the pneumogastric nerve, or nerve of Arnold, ramus auricularis nervi vagi, are shown in Fig. 1310, p. 868.

¹ In Soemmerring's enumeration the *facial* is the seventh, the *auditory* is the eighth cranial nerve; in that of Willis the former is the *portio dura*, the latter the *portio molis*, of the seventh cranial nerve.

² Ninth cranial nerve in Soemmerring's enumeration; first trunk of the eighth cranial nerve in that of Willis.

³ Sometimes called the *cervical ganglion* of the vagus nerve. Macalister uses the Latin equivalent, *ganglion cervicale vagi*.

⁴ Eleventh cranial nerve in Soemmerring's enumeration; third trunk of the eighth cranial nerve in that of Willis.

⁵ Tenth cranial nerve in Soemmerring's enumeration; second trunk of the eighth cranial nerve in that of Willis.

⁶ See Appendix, note 422. ⁷ See Appendix, note 464. ⁸ See Appendix, note 465. ⁹ See Appendix, note 465. ¹⁰ See Appendix, note 465. ¹¹ See Appendix, note 466.

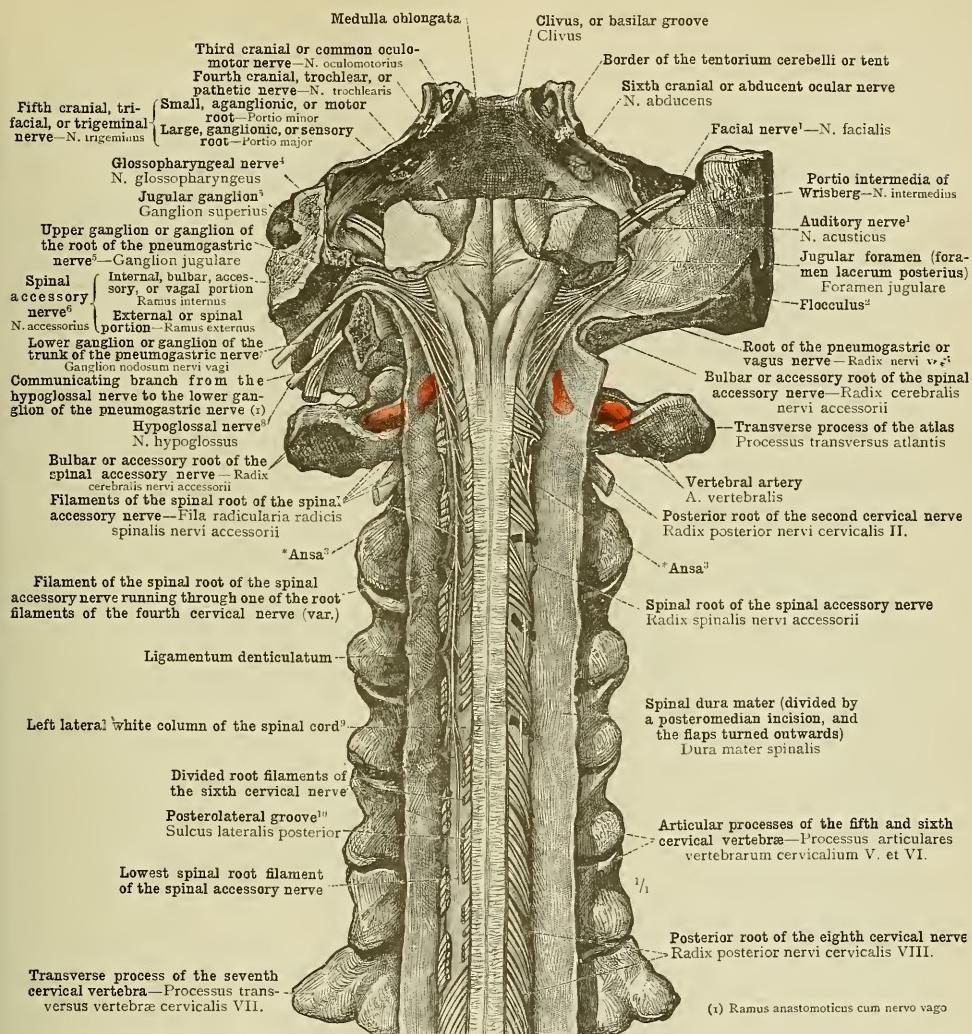


FIG. 1316.—THE ROOTS OF THE PNEUMOGASTRIC OR VAGUS NERVE, N. VAGUS (see note ¹¹ below), AND THE SPINAL ACCESSORY NERVE, N. ACCESSORIUS (see note ¹² below); THE DIVISION OF THE SPINAL ACCESSORY NERVE INTO AN INTERNAL, BULBAR, ACCESSORY, OR VAGAL PORTION, RAMUS INTERNUS, AND AN EXTERNAL OR SPINAL PORTION, RAMUS EXTERNUS. SEEN FROM BEHIND.

After removing the tabular portion of the occipital bone and the arches of the vertebrae, a posteromedian incision was made through the spinal dura mater and the flaps were turned outwards, the arachnoid was removed, and on the left side those portions of the posterior roots of the spinal nerves which cover the spinal root filaments of the spinal accessory nerve were cut out: on the right side strips of black paper were passed beneath the spinal root of this nerve. On the left side the nerves emerging through the jugular foramen (foramen jugulare, foramen lacerum posterius) were exposed.

¹ In Soemmerring's enumeration the *facial* is the seventh, the *auditory* the eighth cranial nerve; in that of Willis the former is the *posterior dura*, the latter the *portio molle*, of the seventh cranial nerve.

² Or *subpeduncular lob.* (Ellis.)

³ *Vagus* corresponds in Soemmerring's enumeration; *first trunk of the eighth cranial nerve* in that of Willis.

⁴ See Appendix, note ⁴⁹.

⁵ Eleventh cranial nerve in Soemmerring's enumeration; *third trunk of the eighth cranial nerve* in that of Willis.

⁶ See note ⁵ to p. 872.

⁷ Twelfth cranial nerve in Soemmerring's enumeration, ninth in that of Willis; known also as the *lingual motor nerve*.

⁸ See Appendix, note ³³.

⁹ Tenth cranial nerve in Soemmerring's enumeration; *second trunk of the eighth cranial nerve* in that of Willis.

¹⁰ See Appendix, note ³³⁵.

¹¹ See Appendix, note ³³⁵.

¹² See Appendix, note ³³⁵.

¹³ See Appendix, note ³³⁵.

¹⁴ See Appendix, note ³³⁵.

¹⁵ See Appendix, note ³³⁵.

¹⁶ See Appendix, note ³³⁵.

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⁴⁰ See Appendix, note ³³⁵.

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⁴⁴ See Appendix, note ³³⁵.

⁴⁵ See Appendix, note ³³⁵.

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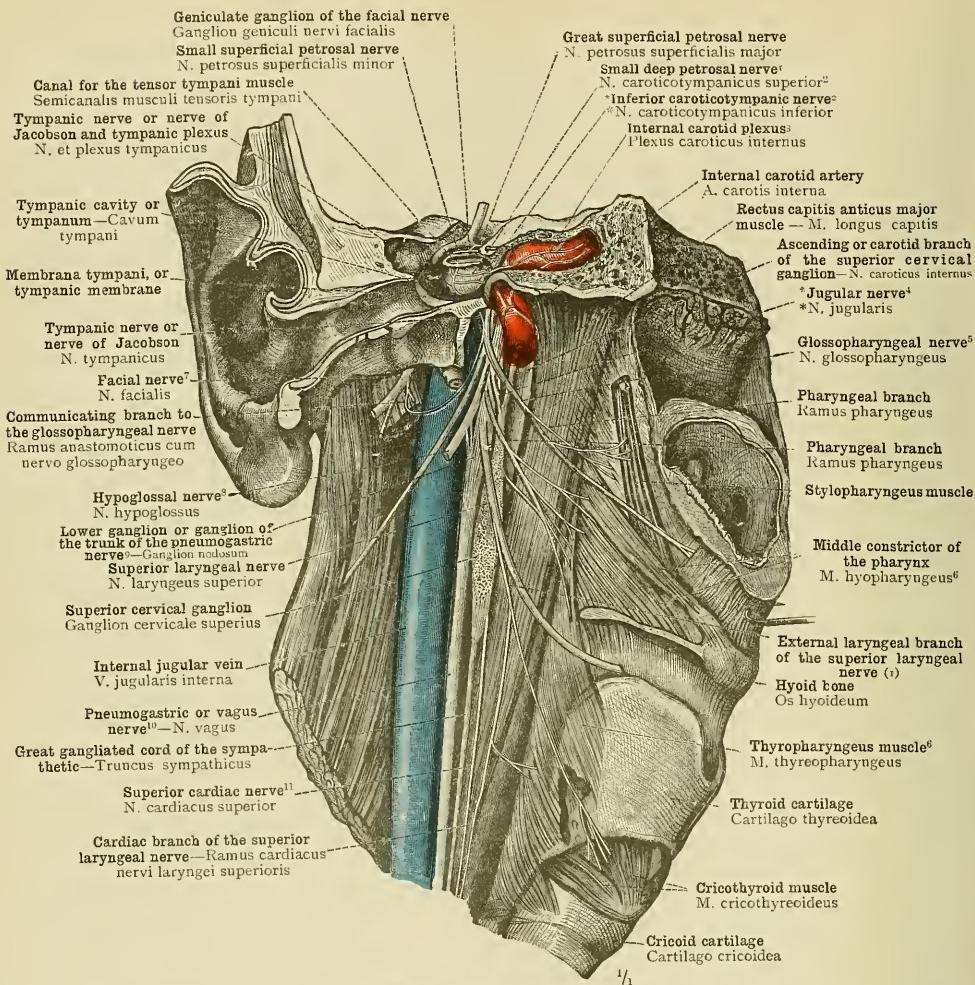
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¹⁹⁷ See Appendix, note ³³⁵.

¹⁹⁸ See Appendix, note ³³⁵.

¹⁹⁹ See Appendix, note ³³⁵.

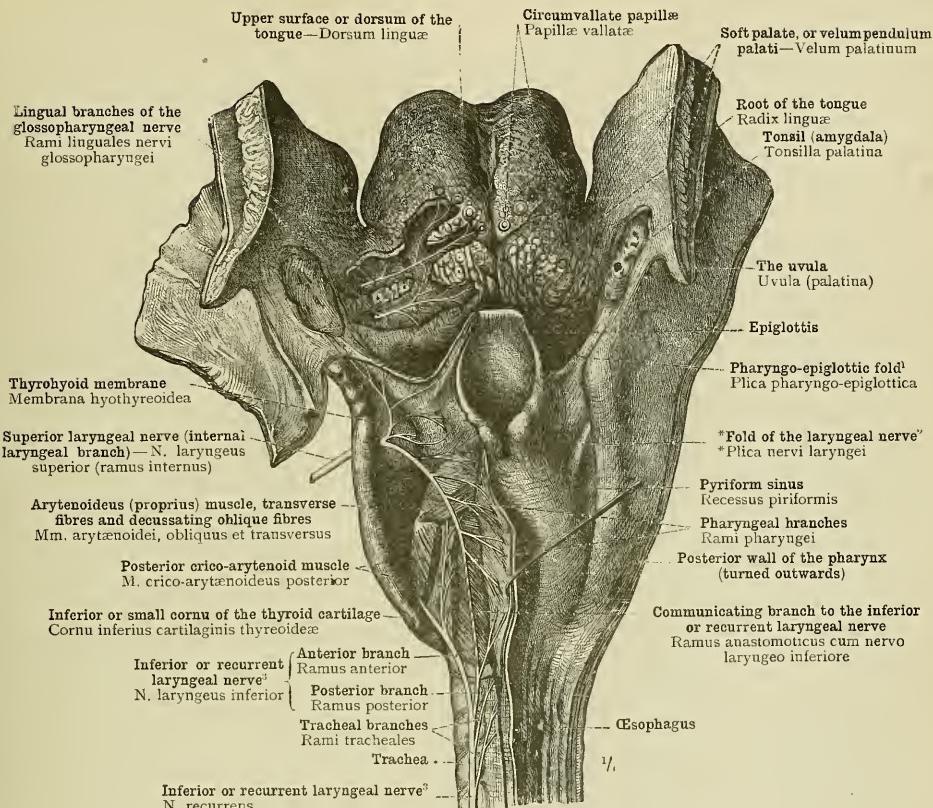


(t) Ramus externus nervi laryngei superioris

FIG. 1317.—THE GLOSSOPHARYNGEAL NERVE, N. GLOSSOPHARYNGEUS (*see note* ⁶ *below*) ; ITS COMMUNICATING BRANCH TO THE FACIAL NERVE, N. FACIALIS (*see note* ⁷ *below*) ; THE TYMPANIC NERVE (N. TYMPANICUS), TYMPANIC PLEXUS (PLEXUS TYMPANICUS), SMALL DEEP PETROSAL NERVE (N. CAROTICOTYMPANICUS SUPERIOR—*see Appendix*, note ⁴⁵²), *INFERIOR CAROTICOTYMPANIC NERVE (N. CAROTICOTYMPANICUS INFERIOR—*see Appendix*, note ⁴⁶⁸) ; THE BRANCHES OF THE GLOSSOPHARYNGEAL NERVE TO THE PHARYNX AND TO THE STYLOPHARYNGEUS MUSCLE. THE COMMUNICATION OF THE PNEUMOGASTRIC OR VAGUS NERVE, N. VAGUS (*see note* ¹⁰ *below*), WITH THE HYPOGLOSSAL NERVE, N. HYPOGLOSSUS (*see note* ⁸ *below*), AND WITH THE SYMPATHETIC NERVOUS SYSTEM, AND THE PHARYNGEAL AND LARYNGEAL BRANCHES OF THE PNEUMOGASTRIC NERVE.

On the right side of the head a saw-cut was made through the external auditory meatus, the tympanum, and the anterior wall of the carotid canal, and the basilar portion or process of the occipital bone was divided transversely. The pharynx and the soft palate were detached from the base of the skull, and the pharynx with the stylopharyngeus muscle and the larynx was drawn to the left.

⁶ See Appendix, note 452.⁷ Ninth cranial nerve in Soemmerring's enumeration; first trunk of the eighth cranial nerve in that of Willis.⁸ See Appendix, note 479.⁹ Twelfth cranial nerve in Soemmerring's enumeration; *partis durae* of the seventh in that of Willis.¹⁰ See note 5 to p. 872.¹¹ Tenth cranial nerve in Soemmerring's enumeration; second trunk of the eighth cranial nerve in that of Willis.¹² Also called the *superficial cardiac nerve*.

¹ See note 7 to p. 415, in Part IV.² See note 3 to p. 434, in Part IV.

3 See Appendix, note 462.

FIG. 1318.—THE PERIPHERAL OFFSETS OF THE GLOSSOPHARYNGEAL NERVE, N. GLOSSOPHARYNGEUS, TO THE MUCOUS MEMBRANE OF THE ROOT OF THE TONGUE AND TO THE CIRCUMVALLATE PAPILLE. (THE BRANCHES OF THIS NERVE TO THE EDGE OF THE TONGUE ARE SHOWN IN FIG. 1324, p. 381.) THE OFFSETS OF THE INTERNAL LARYNGEAL BRANCH OF THE SUPERIOR LARYNGEAL NERVE, RAMUS INTERNUS NERVI LARYNGEI SUPERIORIS, TO THE MUCOUS MEMBRANE OF THE LARYNX AND THE PHARYNX, AND THE COMMUNICATING BRANCH TO THE INFERIOR OR RECURRENT LARYNGEAL NERVE, N. LARYNGEUS INFERIOR (see Appendix, note 462). SEEN FROM BEHIND.

The tongue, the soft palate, and the pharynx having been excised, the soft palate was divided by a median incision and its halves turned right and left. The branches of the glossopharyngeal nerve were exposed by the partial removal of the mucous membrane of the root of the tongue. In order to display the ramification of the superior laryngeal nerve, the mucous membrane of the pharynx was raised and turned inwards on the left side from the pharyngo-epiglottic fold above to the junction of the pharynx with the esophagus below

Vagus Group.

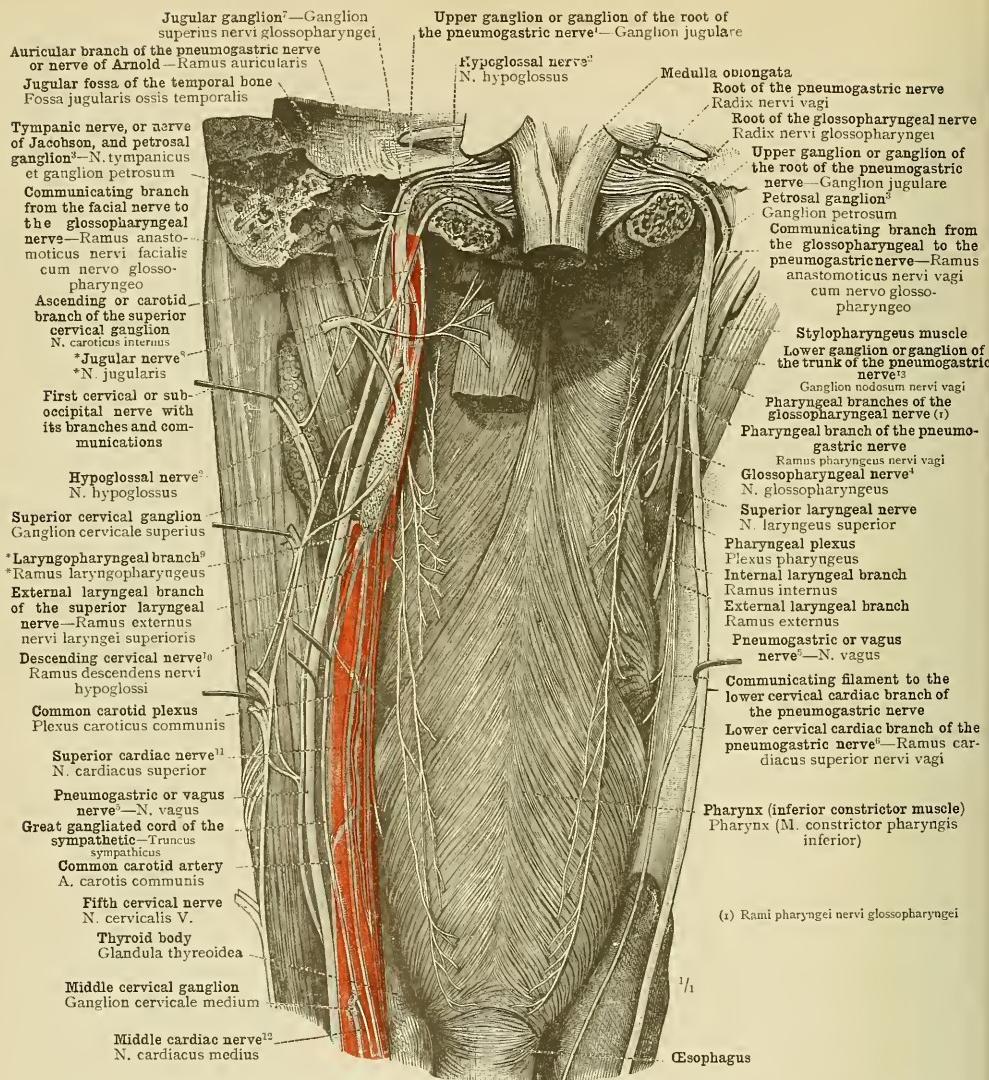


FIG. 1319.—THE CEPHALIC PORTION AND THE UPPER PART OF THE CERVICAL PORTION OF THE PNEUMOGASTRIC OR VAGUS NERVE, N. VAGUS, SEEN FROM BEHIND. ON THE LEFT SIDE THE COMMUNICATIONS OF THE PNEUMOGASTRIC NERVE WITH THE GLOSSOPHARYNGEAL NERVE, N. GLOSSOPHARYNGEUS, AND THE HYPOGLOSSAL NERVE, N. HYPOGLOSSUS, AS WELL AS THE COMMUNICATIONS OF THE SYMPATHETIC NERVOUS SYSTEM WITH THE NERVES JUST NAMED AND WITH THE UPPER CERVICAL NERVES, ARE DISPLAYED; ON THIS SIDE ALSO THE UPPER EXTREMITIES OF THE RECTUS CAPITIS ANTERIOR MUSCLES, MAJOR AND MINOR, HAVE BEEN PRESERVED. ON THE RIGHT SIDE THE PNEUMOGASTRIC AND GLOSSOPHARYNGEAL NERVES ONLY, WITH THEIR PHARYNGEAL BRANCHES, RAMI PHARYNGEI, AND THE PHARYNGEAL PLEXUS, PLEXUS PHARYNGEUS, ARE DISPLAYED.

¹ See Appendix, note 447.

² Twelfth cranial nerve in Soemmerring's enumeration, ninth in that of Willis; also known as the lingual motor nerve.

³ Known also as Andrach's ganglion.

⁴ Ninth cranial nerve in Soemmerring's enumeration; first trunk of the eighth cranial nerve in that of Willis.

⁵ Twelfth cranial nerve in Soemmerring's enumeration; second trunk of the eighth cranial nerve in that of Willis.

⁶ See Appendix, note 452.

⁷ See Appendix, note 457.

⁸ See Appendix, note 460.

⁹ This name is used neither by Quain nor by Macalister.

¹⁰ See Appendix, note 470.

¹¹ Also called the superficial cardiac nerve.

¹² Also called the great or deep cardiac nerve.

¹³ See note 5 to p. 872.

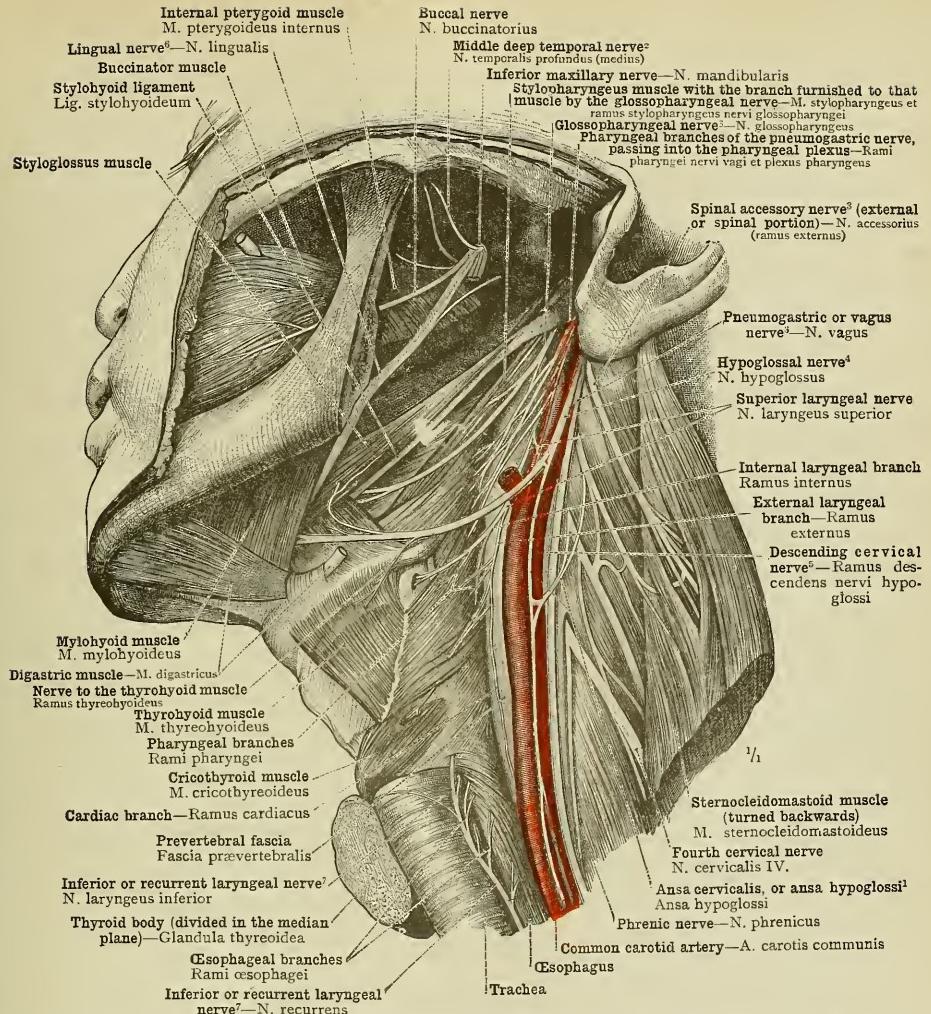


FIG. 1320.—THE HYPOGLOSSAL NERVE, N. HYPOGLOSSUS (see note ⁴ below), DISPLAYED ON THE LEFT SIDE OF THE NECK; ITS DESCENDING BRANCH, THE DESCENDING CERVICAL NERVE, RAMUS DESCENDENS NERVI HYPOGLOSSI (see Appendix, note ⁴²⁰), WITH THE ANSA CERVICALIS OR ANSA HYPOGLOSSI (see note ¹ below). WITH REGARD TO THE DISTRIBUTION OF THE DESCENDING CERVICAL NERVE, see Fig. 1249, p. 817; AND WITH REGARD TO THE TERMINAL EXPANSION OF THE HYPOGLOSSAL NERVE IN THE TONGUE, see FIG. 1325, p. 882. THE MUTUAL RELATIONS OF THE GLOSSOPHARYNGEAL NERVE, N. GLOSSOPHARYNGEUS, AND THE PNEUMOGASTRIC OR VAGUS NERVE, N. VAGUS (see note ³ below); THE PHARYNGEAL BRANCHES, RAMI PHARYNGEI, OF THESE NERVES, FORMING THE PHARYNGEAL PLEXUS, PLEXUS PHARYNGEUS. THE EXTERNAL OR SPINAL PORTION, RAMUS EXTERNUS, OF THE SPINAL ACCESSORY NERVE, N. ACCESSORIUS (see note ³ below), AND ITS COMMUNICATION WITH THE SECOND AND THIRD CERVICAL NERVES. A PART OF THE RAMIFICATION OF THE INFERIOR MAXILLARY NERVE, N. MANDIBULARIS.

The posterior belly of the digastric muscle and the stylohyoid muscle have been removed, and the sternocleidomastoid muscle has been turned backwards.

¹ Also called *ansa infrayhoidea*. See Appendix, note 421.

² In Fig. 1305, p. 865, the author shows *anterior* and *posterior deep temporal nerves* only, and these are the only *deep temporal nerves* mentioned in Von Langer and Toldt's "Anatomy" (see Appendix, note 424). In this figure, however, a *middle deep temporal nerve* also is shown.

³ In Soemmerring's enumeration the *glossopharyngeal* is the *ninth cranial nerve*, the *pneumogastric* the *tenth*, and the *spinal accessory* the *eleventh*; in that of Wilb's they are respectively the *first*, *second*, and *third* trunks of the *eighth cranial nerve*.

⁴ Twelfth cranial nerve in Soemmerring's enumeration, *ninth* in that of Willis; also known as the *lingual motor nerve*.

⁵ See Appendix, note 420.

⁶ Formerly known also as the *gustatory nerve*.

⁷ See Appendix, note 422.

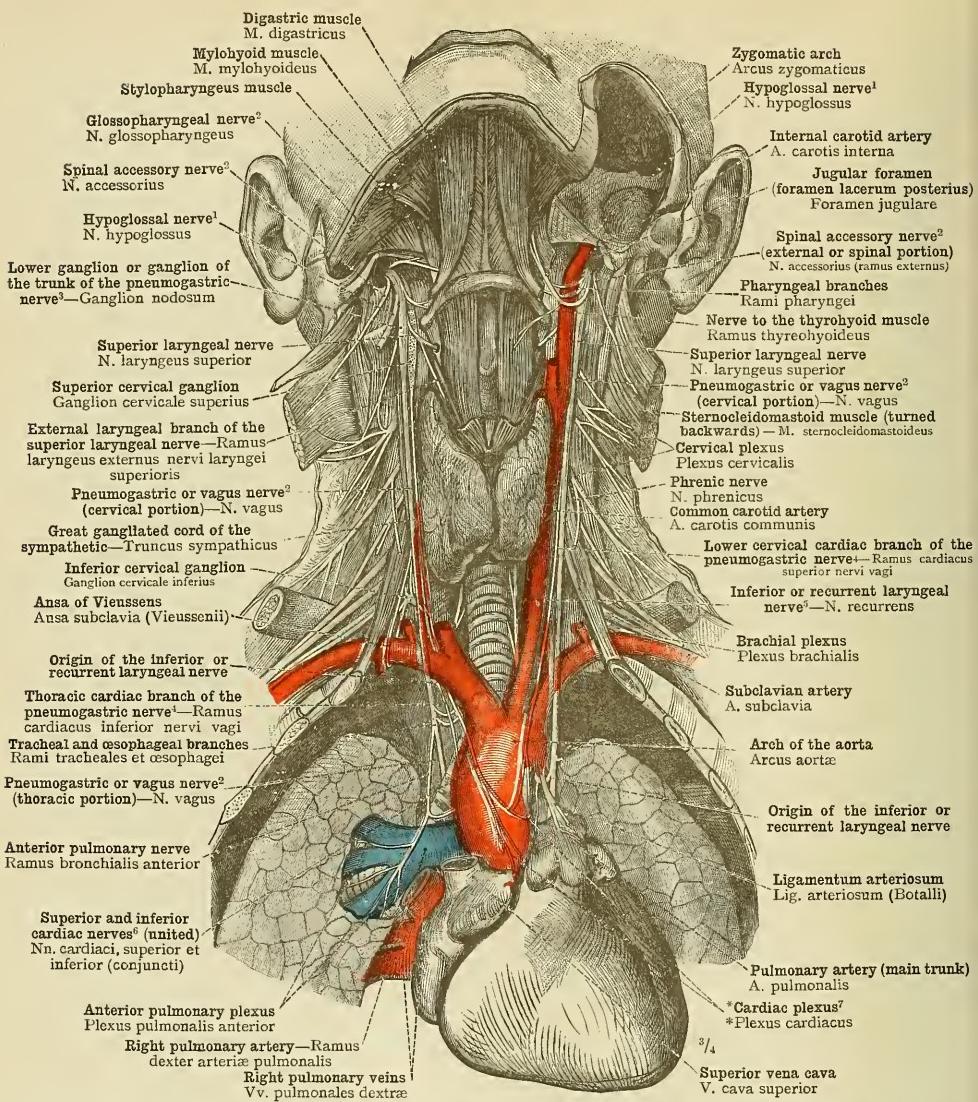


FIG. 1321.—THE CERVICAL PORTION AND THE UPPERMOST PART OF THE THORACIC PORTION OF THE PNEUMOGASTRIC OR VAGUS NERVE, N. VAGUS (see note² below), SEEN FROM BEFORE; THE CARDIAC BRANCHES, RAMI CARDIACI, AND THE ANTERIOR PULMONARY BRANCH, RAMUS BRONCHIALIS ANTERIOR, OF THIS NERVE. THE ORIGIN OF THE INFERIOR OR RECURRENT LARYNGEAL NERVE, N. RECURRENS (see Appendix, note⁶) FROM THE PNEUMOGASTRIC TRUNK. ON THE RIGHT SIDE OF THE BODY THE GREAT GANGLIATED CORD OF THE SYMPATHETIC IS ALSO DISPLAYED.

The head is bent strongly backwards.

¹ Twelfth cranial nerve in Soemmerring's enumeration, ninth in that of Willis; also known as the *lingual motor nerve*.

² In Soemmerring's enumeration the *glossopharyngeal nerve* is the ninth cranial nerve, the *pneumogastric* the tenth, and the *spinal accessory* the eleventh; in that of Willis they are respectively the first, second, and third trunks of the eighth cranial nerve.

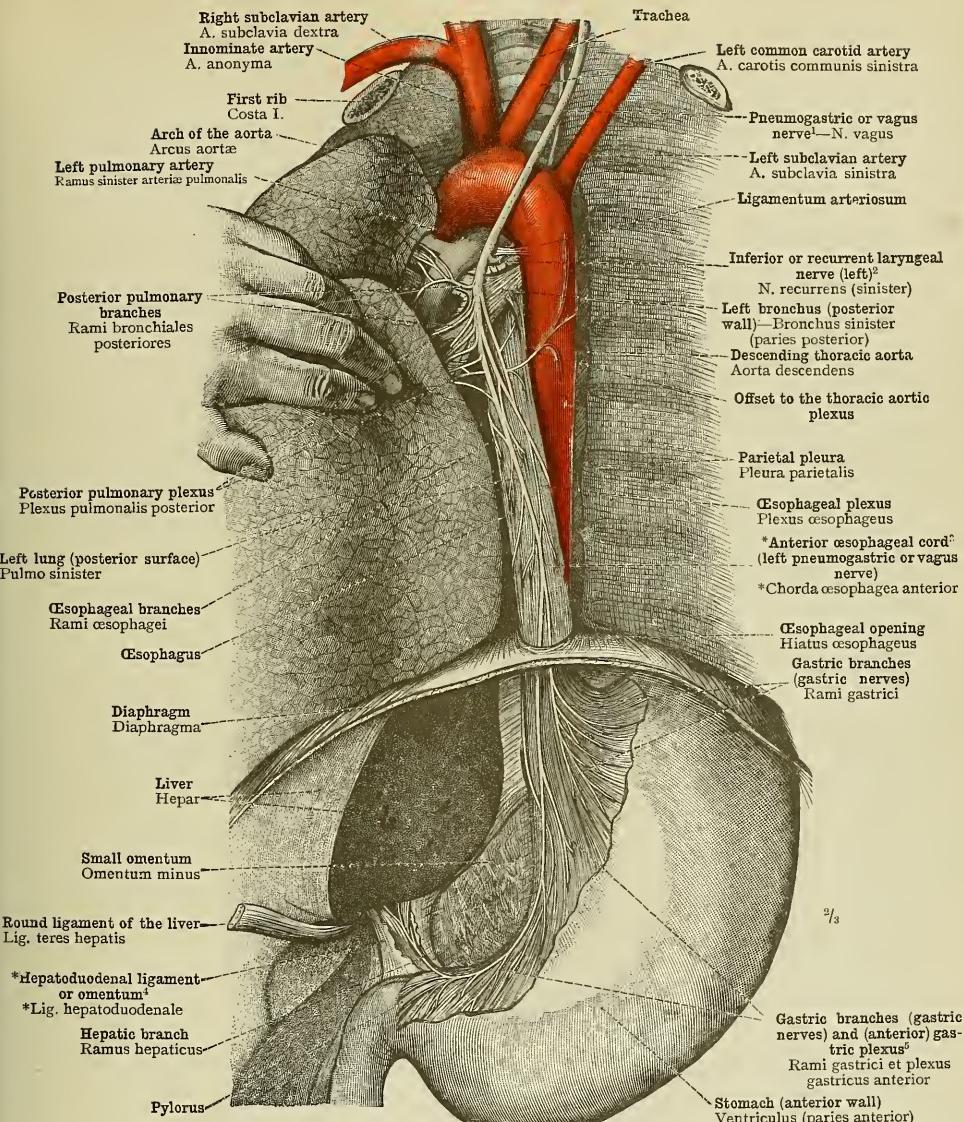
³ See note 5 to p. 872.

⁴ See Appendix, note 42.

⁵ See Appendix, note 42.

⁶ The *superior cardiac nerve* is known also as the *superficial cardiac*, and the *middle cardiac* as the *deep or great cardiac nerve*.

⁷ See Appendix, note 472.



¹ Tenth cranial nerve in Soemmerring's enumeration; second trunk of the eighth cranial nerve in that of Willis.
² See Appendix, note 462.

3 See Appendix, note 464.

⁴ See Appendix to Part IV., note 42.

FIG. 1322.—THE THORACIC PORTION OF THE LEFT PNEUMOGASTRIC OR VAGUS NERVE, N. VAGUS (see note ¹ above), SEEN FROM BEFORE. THE POSTERIOR PULMONARY BRANCHES, RAMI BRONCHIALES POSTERIORES, THE CESOPHAGEAL PLEXUS, PLEXUS CESOPHAGEUS, AND THE RAMIFICATION OF THE *ANTERIOR CESOPHAGEAL CORD (LEFT PNEUMOGASTRIC OR VAGUS NERVE), *CHORDA CESOPHAGEA ANTERIOR (see Appendix, note 464), ON THE ANTERIOR WALL OF THE STOMACH. (COMPARE WITH THIS FIGURE FIG. 1315, p. 872.)

The left lung has been drawn out of the thoracic cavity and turned to the right.

Vagus Group.

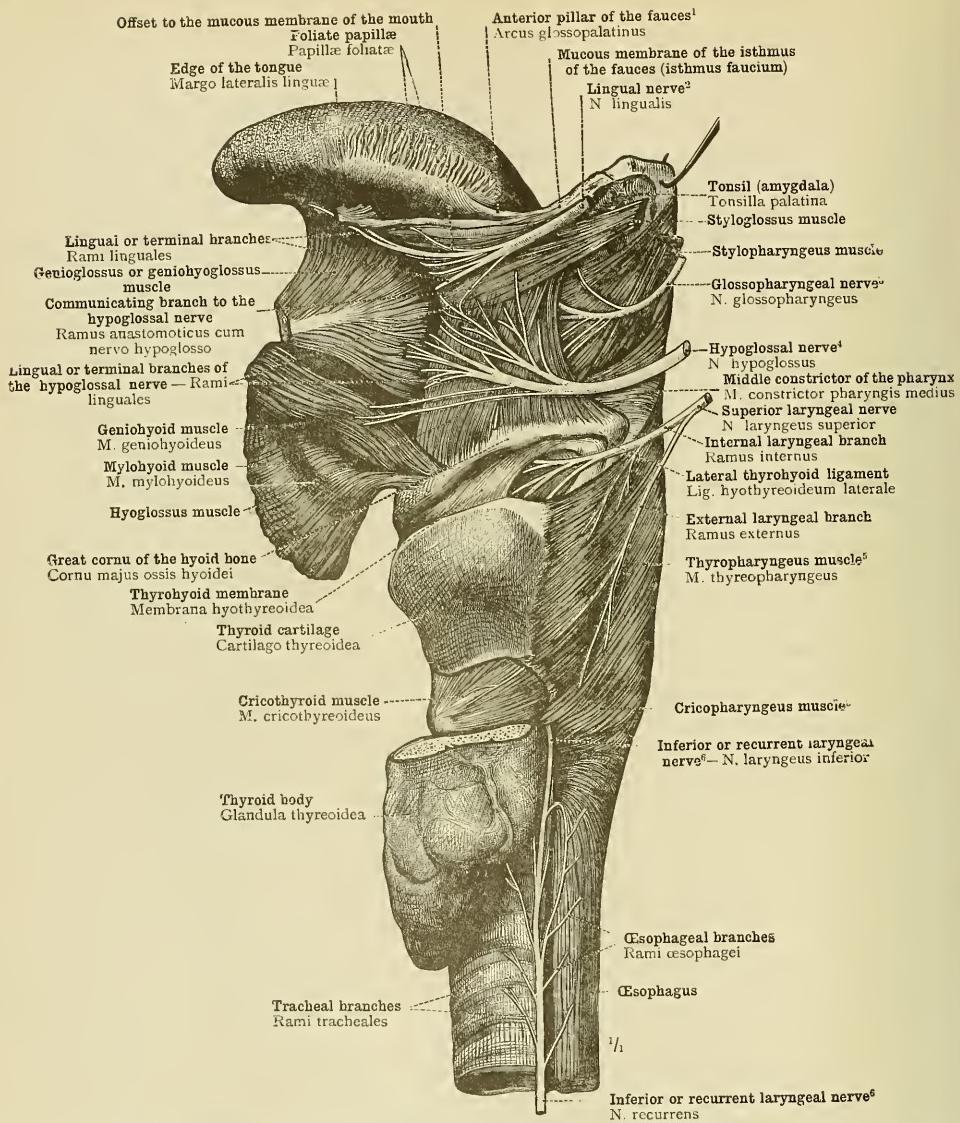


FIG. 1223.—THE DISTRIBUTION OF THE LINGUAL NERVE, N. LINGUALIS (see note² below), THE GLOSSOPHARYNGEAL NERVE, N. GLOSSOPHARYNGEUS (see note³ below), AND THE HYPOGLOSSAL NERVE, N. HYPOGLOSSUS (see note⁴ below), ALSO OF THE SUPERIOR LARYNGEAL NERVE, N. LARYNGEUS SUPERIOR, AND THE INFERIOR OR RECURRENT LARYNGEAL NERVE, N. RECURRENS (see Appendix, note⁴⁰²), AS SEEN FROM THE LEFT SIDE ON THE OUTER SURFACE OF THE ISOLATED CEPHALIC AND CERVICAL VISCERA.

In order to lay bare the cricothyroid muscle, musculus cricothyreoides, and the nerve to the cricothyroid muscle, the upper half of the left lateral lobe of the thyroid body was cut away.

¹ Known also as the *anterior palatine*, or *glossopalatine*, arch.

² Formerly known also as the *gustatory nerve*.

³ Ninth cranial nerve according to its enumeration; first trunk of the eighth cranial nerve in that of Willis.

⁴ Twelfth cranial nerve in Sömmering's enumeration, ninth in that of Willis; also known as the *lingual motor nerve*.

⁵ The *thyropharyngeus* muscle is the upper part, the *cricopharyngeus* muscle the lower part, of the *inferior constrictor of the pharynx*. See Fig. 706, p. 433, in Part IV.

⁶ See Appendix, note 402.

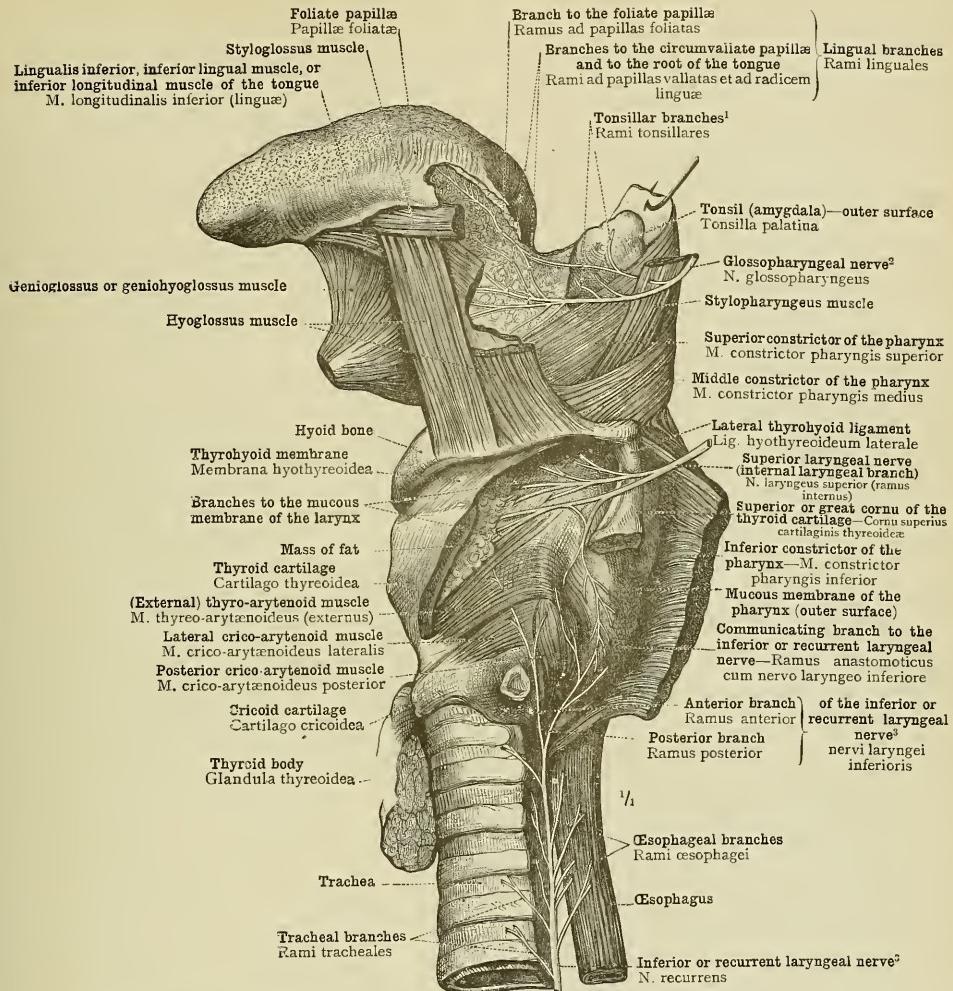
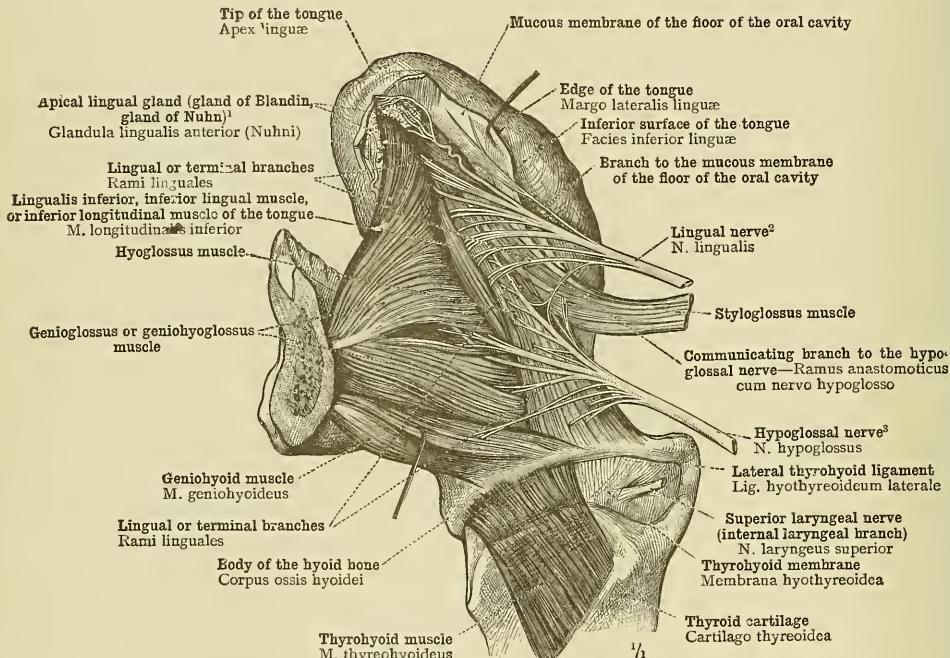


FIG. 1324.—THE TERMINAL RAMIFICATION OF THE GLOSSOPHARYNGEAL NERVE, N. GLOSSOPHARYNGEUS (see note ² below) IN THE REGION OF THE Isthmus of the Fauces, Isthmus Fauciūm, ON THE OUTER SURFACE OF THE TONSIL (TONSILLA PALATINA), AND ON THE EDGE OF THE TONGUE, MARGO LATERALIS LINGUÆ. THE DISTRIBUTION OF THE SUPERIOR LARYNGEAL NERVE, N. LARYNGEUS SUPERIOR, AND THE INFERIOR OR RECURRENT LARYNGEAL NERVE, N. LARYNGEUS INFERIOR (see Appendix, note ⁴⁶²), TO THE LARYNX AND THE PHARYNX, DISPLAYED BY THE REMOVAL OF THE GREATER PART OF THE LEFT ALA OF THE THYROID CARTILAGE AND OF THE INFERIOR CONSTRICTOR OF THE PHARYNX, M. CONSTRICCTOR PHARYNGIS INFERIOR. SEEN FROM THE LEFT SIDE. (FIGURE 1318 SHOULD BE COMPARED WITH THIS FIGURE.)

¹ Quain speaks of the tonsillitic branches of the glossopharyngeal nerve. The adjectival form *tonsillar*, which is used by the same author of the arteries of the tonsil, is to be preferred, and is used in the text.

² Ninth cranial nerve in Soemmerring's enumeration; first trunk of the eighth cranial nerve in that of Willis.

³ See Appendix, note ⁴⁶².



¹ See note ² to p. 420, in Part IV.
² Formerly known also as the *gustatory nerve*.

³ Twelfth cranial nerve in Soemmerring's enumeration, ninth in that of Willis; also known as the *Lingual motor nerve*.

FIG. 1325.—THE RAMIFICATION OF THE HYPOGLOSSAL NERVE, N. HYPOGLOSSUS (see note ³ above), AND THE LINGUAL NERVE, N. LINGUALIS (see note ² above), IN THE TONGUE, AND THE COMMUNICATIONS BETWEEN THESE TWO NERVES, SEEN OBLIQUELY FROM BELOW AND THE LEFT SIDE. THE ENTRANCE OF THE INTERNAL LARYNGEAL BRANCH OF THE SUPERIOR LARYNGEAL NERVE, RAMUS INTERNUS NERVI LARYNGEI SUPERIORIS, INTO THE INTERIOR OF THE LARYNX THROUGH THE THYROHYOID MEMBRANE, MEMBRANA HYOTHYREOIDEA.

SYSTEMA NERVORUM
SYMPATHICUM

THE
SYMPATHETIC NERVOUS SYSTEM

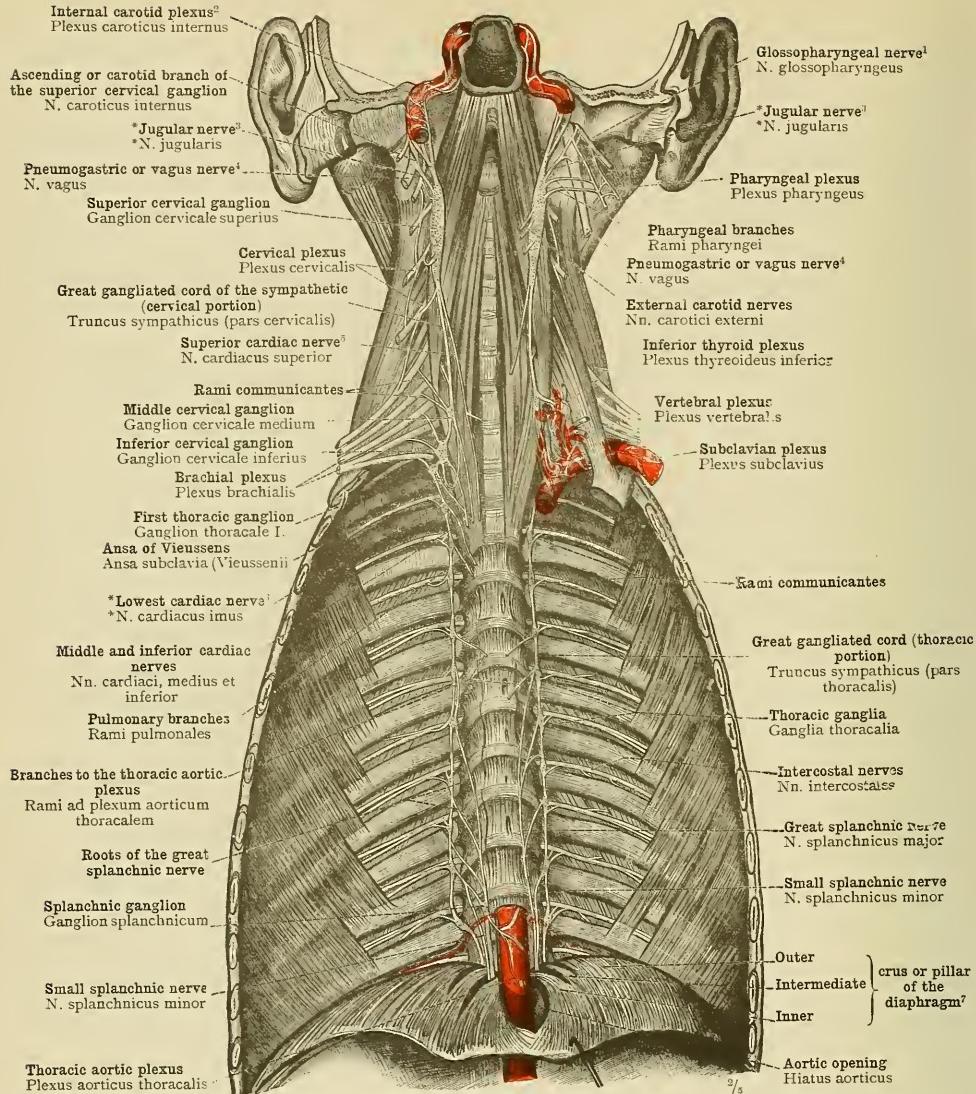


FIG. 1326.—CERVICAL PORTION, PARS CERVICALIS, AND THORACIC PORTION, PARS THORACALIS, OF THE GREAT GANGLIATED CORD OF THE SYMPATHETIC, WITH ITS GANGLIA (VERTEERAL OR LATERAL GANGLIA OF GASKELL), GANGLIA TRUNCI SYMPATHECI; ITS CONTINUITY WITH THE INTERNAL CAROTID PLEXUS, PLEXUS CAROTICUS INTERNUS (see note ³ to p. 859), ITS COMMUNICATIONS WITH THE CEREBROSPINAL NERVES, AND ITS BRANCHES OF DISTRIBUTION. SEEN FROM BEFORE.

¹ Ninth cranial nerve in Soemmerring's enumeration; first trunk of the eighth cranial nerve in that of Willis.

² See note 3 to p. 859.

³ See Appendix, note 45.

⁴ Tenth cranial nerve in Soemmerring's enumeration; second trunk of the eighth cranial nerve in that of Willis.

⁵ Also known as the superficial cardiac nerve.

⁶ See Appendix, note 47.

⁷ See note 1 to p. 286, in Part III.

Truncus sympathicus—Great gangliated cord of the sympathetic.

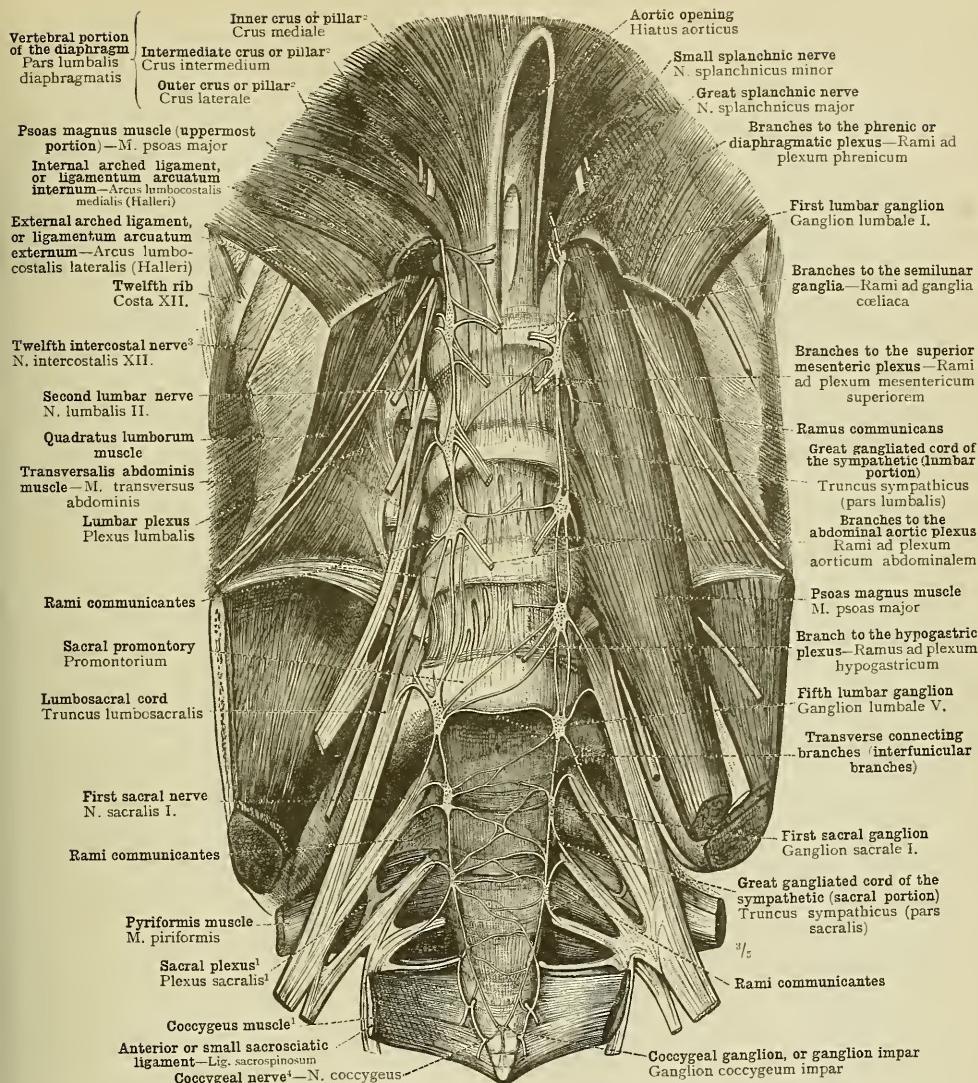


FIG. 1327.—LUMBAR PORTION, PARS LUMBALIS, AND SACRAL PORTION, PARS SACRALIS, OF THE GREAT GANGLIATED CORD OF THE SYMPATHETIC, WITH ITS GANGLIA (VERTEBRAL OR LATERAL GANGLIA OF GASKELL), GANGLIA TRUNCUS SYMPATHECI; ITS COMMUNICATIONS WITH THE SPINAL NERVES, AND ITS BRANCHES OF DISTRIBUTION. SEEN FROM BEFORE.

On the right side of the body the psoas magnus muscle, *musculus psoas major*, has been removed, in order to lay bare the lumbar plexus, *plexus lumbalis*, and the rami communicantes of the lumbar portion of the great gangliated cord of the sympathetic.

¹ The nervous plexus denoted here by the term *plexus sacralis* is by some English authors called the *sciatic plexus*, the *sacral plexus* according to these anatomists comprising both the *plexus sacralis* and *plexus pudendus* of Toldt. See Appendix, note 4³.

² See note ¹ to p. 286, in Part III.

³ Also known as the *subcostal nerve*.

⁴ See Appendix, note 4³.

Truncus sympathicus—Great gangliated cord of the sympathetic.

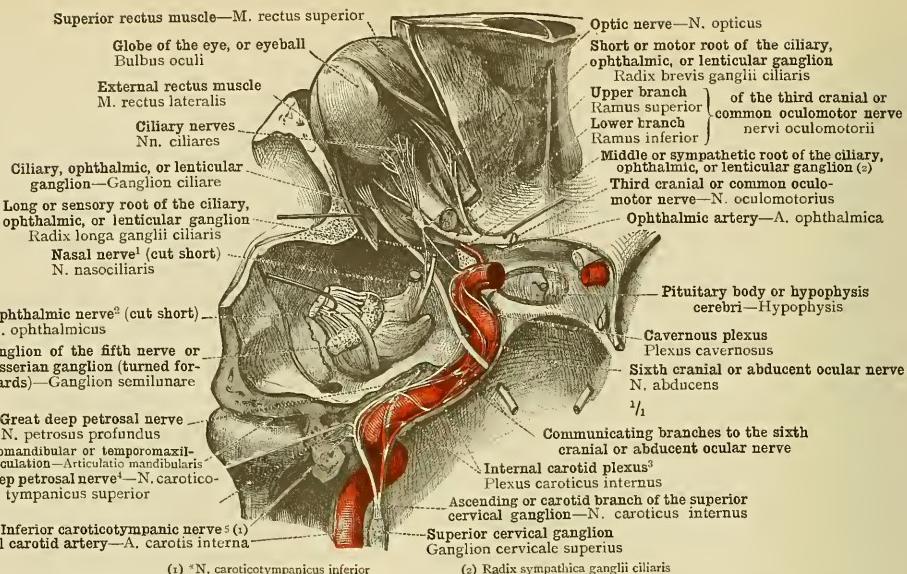


FIG. 1328.—THE CEPHALIC PORTION, PARS CEPHALICA, OF THE SYMPATHETIC NERVOUS SYSTEM. SEEN OBLIQUELY FROM ABOVE AND BEHIND.

The carotid canal, canalis caroticus, and the cavernous sinus, sinus cavernosus, have been opened throughout, and the outer wall and also a part of the upper wall of the left orbit have been cut away. The ganglion of the fifth cranial nerve or Gasserian ganglion, ganglion semilunare (Gasser), has been turned forwards.

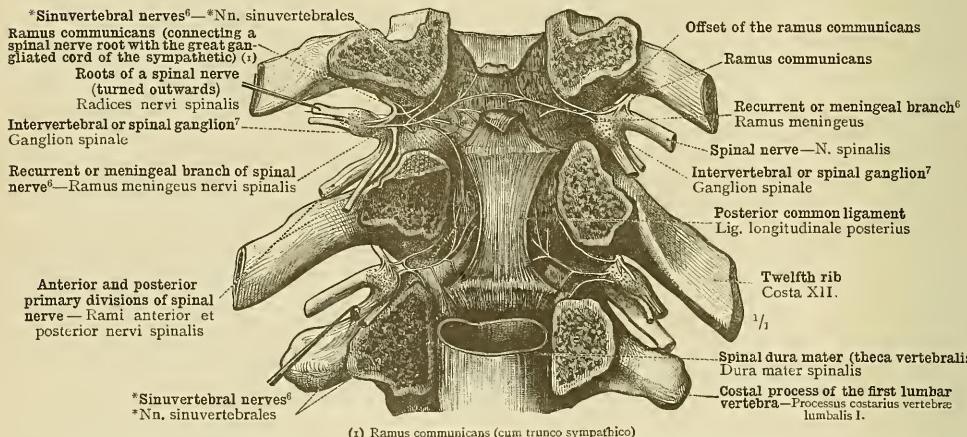


FIG. 1329.—THE NERVES OF THE SPINAL OR NEURAL CANAL (INTRASPINAL NERVES, *SINUVERTEBRAL NERVES, *NERVI SINUVERTEBRALES—see Appendix, note 473), AS SEEN ON THE POSTERIOR SURFACE OF THE BODIES OF THE ELEVENTH AND TWELFTH DORSAL VERTEBRAE WHEN THE NEURAL ARCHES HAVE BEEN CUT AWAY AND THE SPINAL CORD REMOVED FROM BEHIND.

The roots of the spinal nerves with the intervertebral or spinal ganglia of the posterior root) have been turned outwards.

¹ Also known as the *oculonasal* and as the *nasociliary nerve*.

² Or first division of the fifth cranial, *trifacial*, or *trigeminal nerve*.

³ See Appendix, notes 425 and 426.

⁴ See Appendix, note 425.

⁵ See Appendix, note 426.

⁶ Also called the *ganglion of the posterior root*.

⁷ See note 3 to p. 859.

⁸ See Appendix, note 473.

Pars cephalica systematis sympathici—The cephalic portion of the sympathetic nervous system.—*Nervi sinuvertebrales—The *sinuvertebral (intraspinal) nerves.

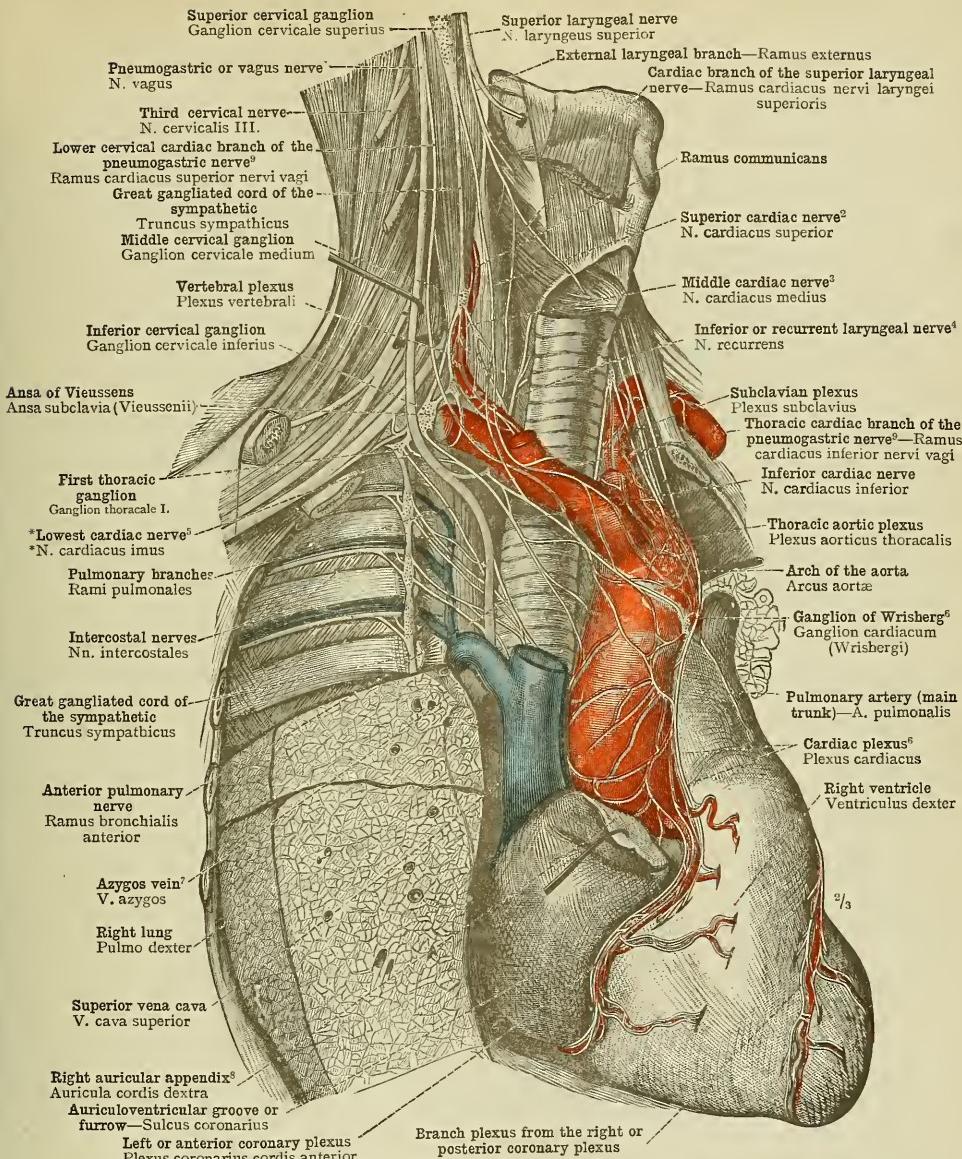


FIG. 1330.—THE CARDIAC NERVES, NN. CARDIACI, AND THE CARDIAC PLEXUS, PLEXUS CARDIACUS (see Appendix, note 471), SEEN FROM THE RIGHT SIDE.

The anterior and upper portions of the right lung have been cut away.

¹ Tenth cranial nerve in Soemmerring's enumeration; second trunk of the eighth cranial nerve in that of Willis.

² Also known as the superficial cardiac nerve.

³ See Appendix, note 472.

⁴ Also called the right or large azygos vein.

⁵ See Appendix, note 472.

⁶ See Appendix, note 471.

⁷ See Appendix to Part V., note 113.

⁸ See Appendix, note 472.

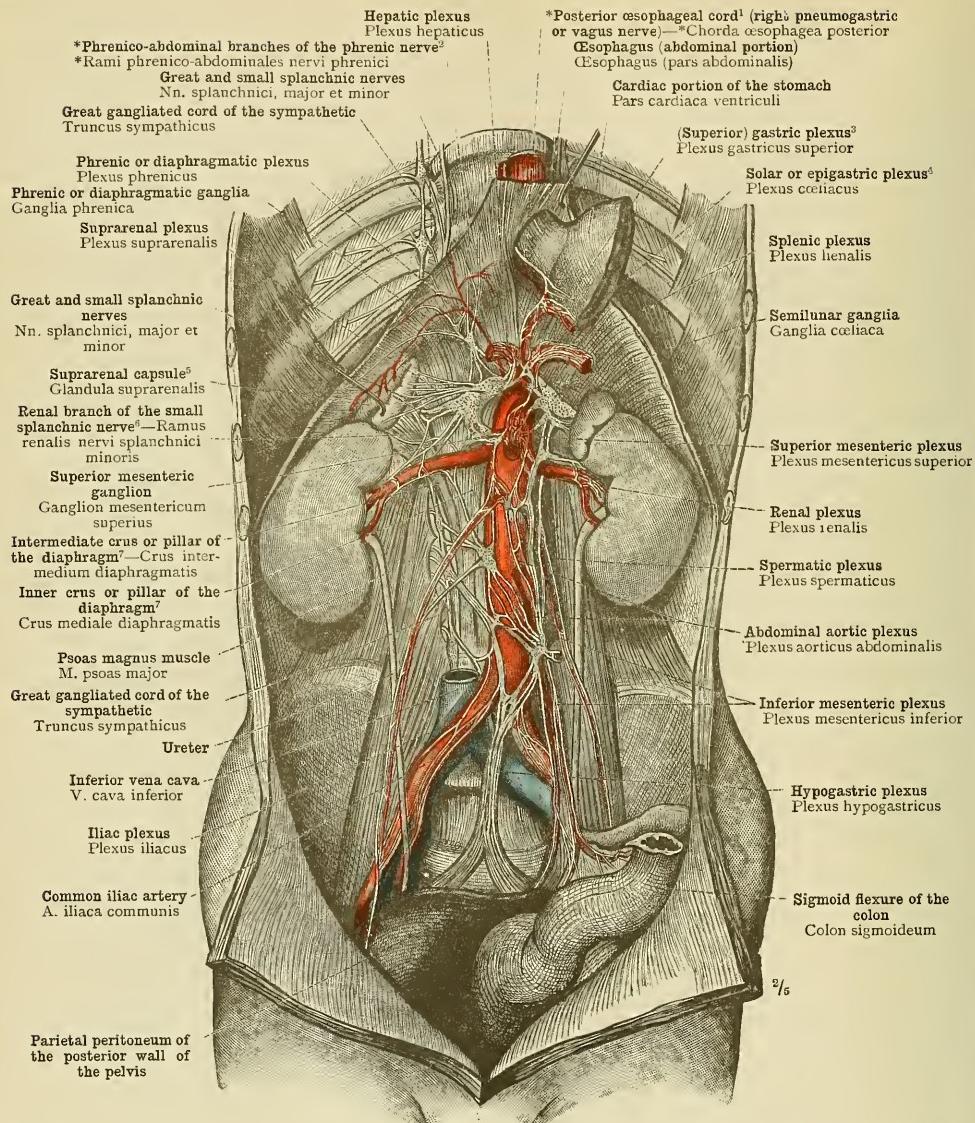


FIG. 1331.—THE GANGLIA OF THE PLEXUSES OF THE SYMPATHETIC (PREVERTEBRAL OR COLLATERAL GANGLIA OF GASKELL), GANGLIA PLEXUM SYMPATHICORUM, AND THE FORMATION OF THE PLEXUSES OF THE SYMPATHETIC, PLEXUS SYMPATHICI, IN THE RETROPERITONEAL SPACE. SEEN FROM BEFORE.

¹ See Appendix, note 464.

² See Appendix, note 424.

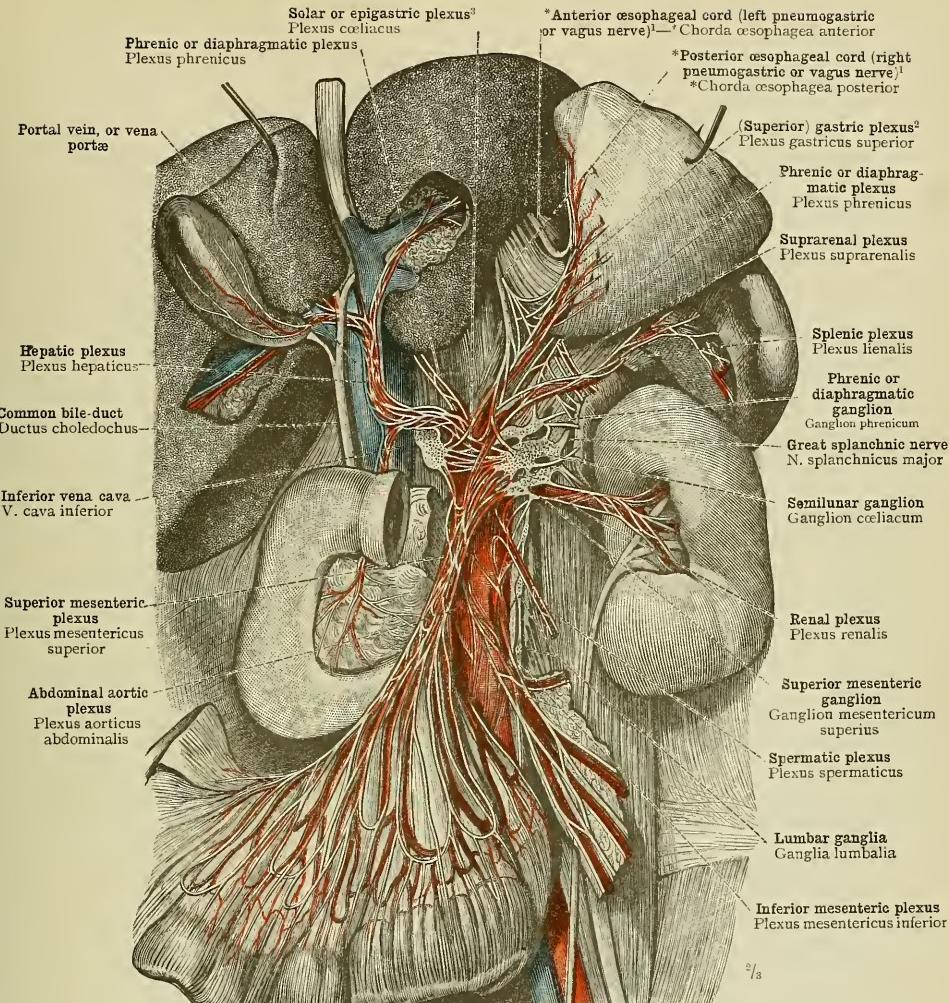
⁵ Called also *suprarenal body*, or *adrenal*.

³ See Appendix, note 465.

⁶ See Appendix, note 475.

⁴ See Appendix, note 474.

⁷ See note ¹ to p. 286, in Part III.

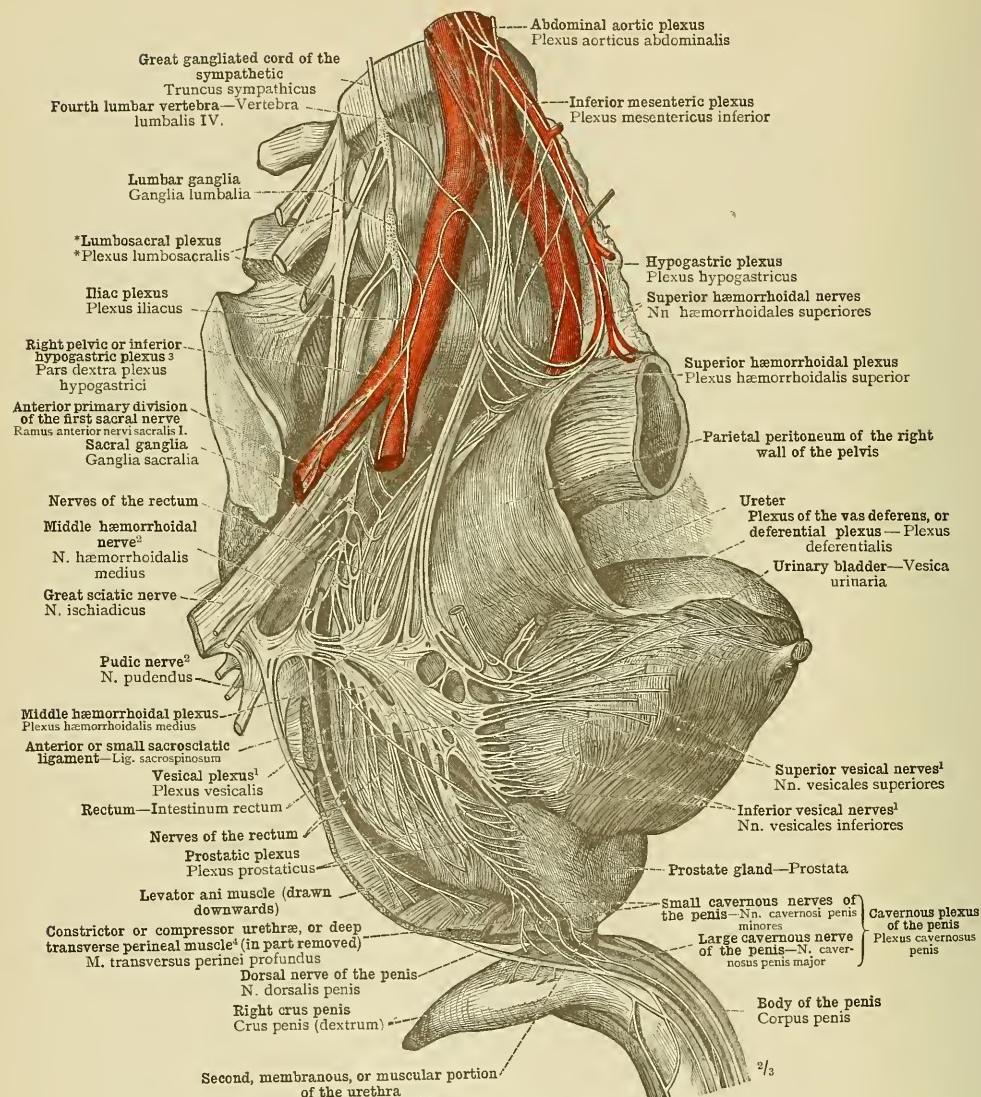
¹ See Appendix, note 464.² See Appendix, note 465.³ See Appendix, note 474.

2/3

FIG. 1332.—THE SEMILUNAR GANGLIA, GANGLIA CELIACA, WITH THE SYMPATHETIC PLEXUSES, PLEXUS SYMPATHICI, OF THE ABDOMINAL VISCERA, RADIATING FROM THESE GANGLIA.

The uppermost portion only of the stomach has been retained, in connexion with the oesophagus, and this portion, together with the liver, has been turned upwards. The pancreas was cut across at the junction of the head and the body (*i.e.*, the neck of the organ, according to English writers—see Fig. 720, p. 441, in Part IV.), and the body of the gland was removed. The arteries and nerves of the mesentery have been exposed by the removal of the peritoneum covering them.

Pars abdominalis systematis sympathici—Abdominal portion of the sympathetic nervous system.



1 See Appendix, note 476.

2 See Appendix, note 438.

3 See Appendix, note 477.

4 See note 1 to p. 527, in Part IV.

FIG. 1333.—THE HYPOGASTRIC AND PELVIC PLEXUSES, PLEXUS HYPOGASTRICUS (see Appendix, note 477), THE PARENT PLEXUSES FROM WHICH THE SYMPATHETIC PLEXUSES OF THE PELVIC VISCERA ARE DERIVED, AND THE SHARE TAKEN BY THE SACRAL PORTION OF THE GREAT SYMPATHETIC CORD IN THEIR FORMATION. THE PUDIC PLEXUS, PLEXUS PUDENDUS (see Appendix, note 438).

Pars pelvina systematis sympathici—Pelvic portion of the sympathetic nervous system.

ORGANA SENSUUM
THE ORGANS OF THE SENSES

ORGANON VISUS
THE EYE

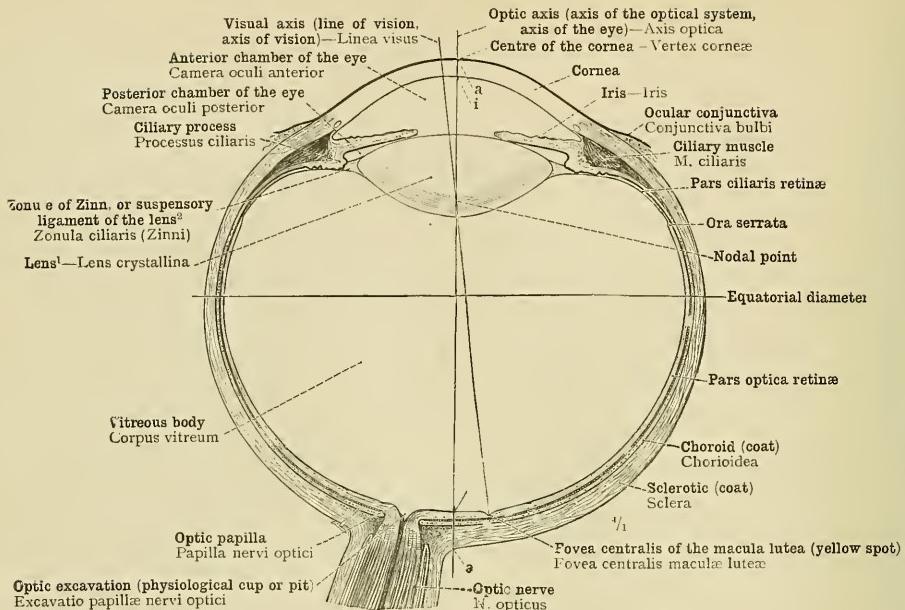
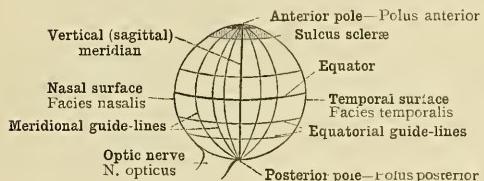
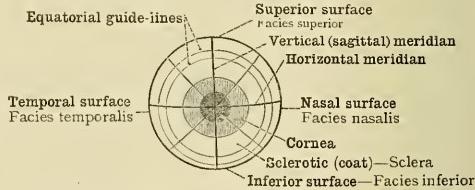


FIG. 1334.—DIAGRAM OF A HORIZONTAL SECTION OF THE RIGHT EYE. VISUAL AXIS, LINEA VISUS; OPTIC AXIS, AXIS OPTICA; aa, EXTERNAL AXIS OF THE EYE, AXIS OCULI EXTERNA; ii, INTERNAL AXIS OF THE EYE, AXIS OCULI INTERNA.

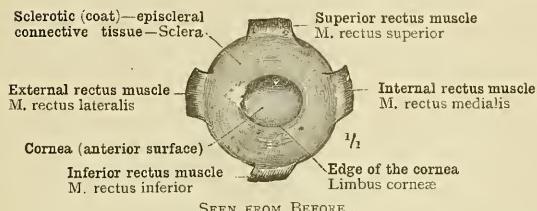


SEEN FROM ABOVE.

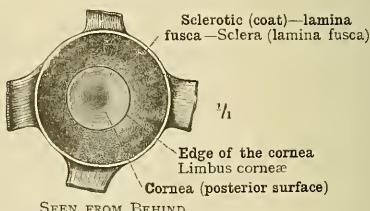


SEEN FROM BEFORE.

FIG. 1335.—TERMS COMMONLY EMPLOYED IN THE ORIENTATION OF THE EYEBALL. RIGHT EYE.



SEEN FROM BEFORE.



SEEN FROM BEHIND.

FIG. 1336.—THE ANTERIOR HEMISPHERE OF THE EXTERNAL FIBROUS COAT OF THE EYEBALL, TUNICA FIBROSA OCULI, CONSISTING OF TWO PARTS: THE SCLEROTIC (COAT), (TUNICA) SCLERA, AND THE CORNEA.

¹ In full known as the *crystalline lens*, but more commonly spoken of as the *lens* without the qualifying adjective.

² See Appendix, note 489.

Bulbus oculi—The globe of the eye, or eyeball.—**Tunica fibrosa oculi**—The external fibrous coat of the eyeball.

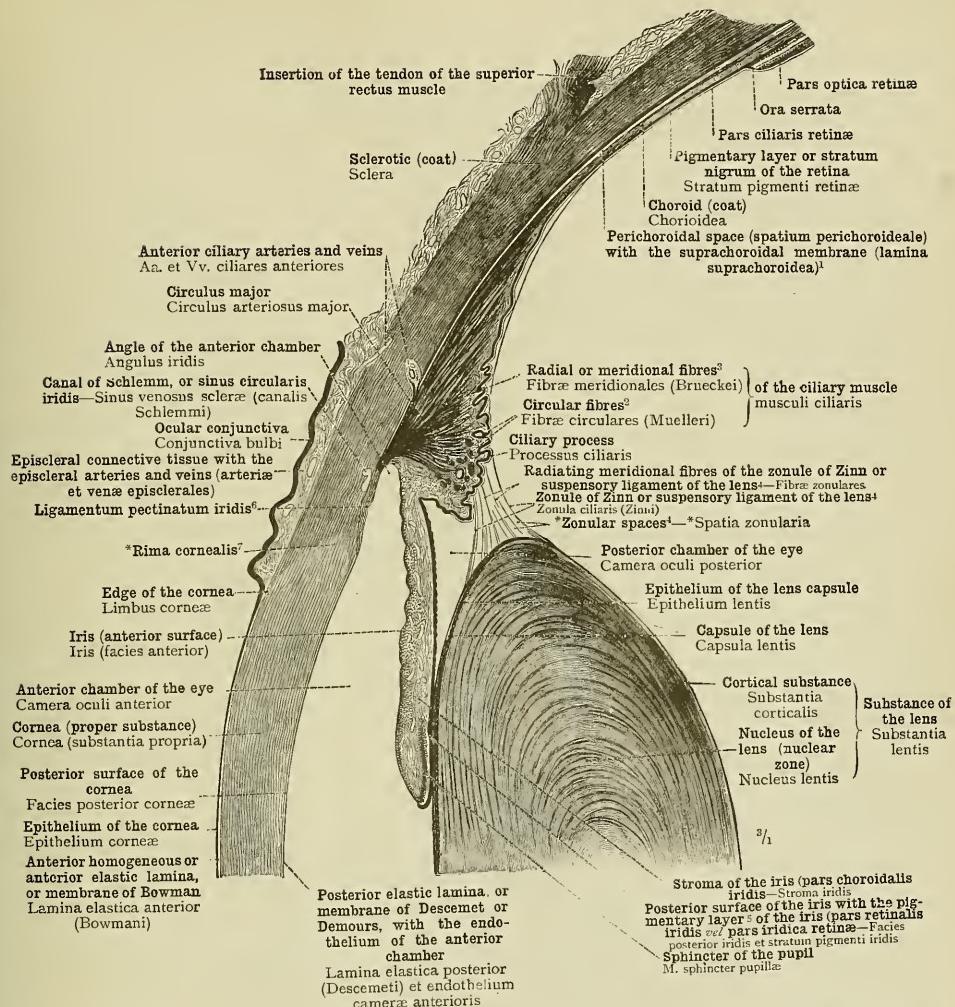


FIG. 1337.—THE UPPER HALF OF A SAGITTAL SECTION THROUGH THE FRONT OF THE EYEBALL. THE LAYERS OF THE THREE COATS OF THE EYEBALL; THE ANTERIOR AND POSTERIOR CHAMBERS, *CAMERA OCULI ANTERIOR ET CAMERA OCULI POSTERIOR*. THE RELATIONS OF THE LENS, LENS CRYSTALLINA, TO THE CILIARY BODY, *CORPUS CILIARE*, AND TO THE IRIS. THE CILIARY MUSCLE, *M. CILIARIS*, AND THE ZONULE OF ZINN OR SUSPENSORY LIGAMENT OF THE LENS, *ZONULA CILIARIS ZINNI* (see Appendix, note ⁴⁵⁰).

¹ See Appendix, note 478.

² See Appendix, note 479.

3 Constituting what is sometimes called the *radial ciliary* system, or the *pillars of the iris*.

⁴ See Appendix, note 480.

⁵ Also called the *veal pâté*.

⁶ Sometimes called the *pillars of the iris*.

¹⁸ (Macalister, *op. cit.*, p. 670)

Sagittal Section of the Eyeball.

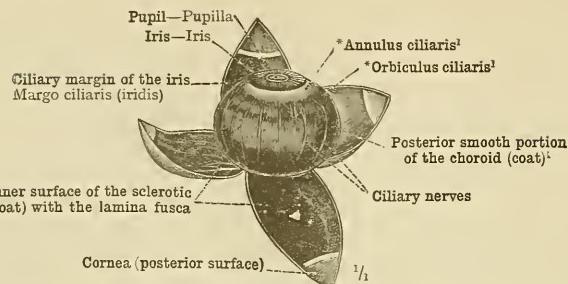


FIG. 1338.—THE MIDDLE OR VASCULAR COAT OF THE EYEBALL, TUNICA UVEA *SEU* VASCULOSA OCULI, EXPOSED FROM WITHOUT; ITS TWO PORTIONS, THE IRIS AND THE CHOROID (COAT), CHORIOIDEA. LEFT EYE, SEEN OBLIQUELY FROM ABOVE AND BEFORE.

The external coat of the eyeball was divided into four segments by meridional incisions extending backwards as far as the entrance of the optic nerve into the globe, and these segments were turned backwards.

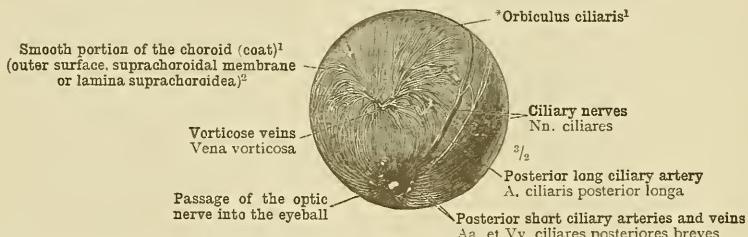


FIG. 1339.—THE POSTERIOR PORTION OF THE CHOROID (COAT), DISPLAYED FROM WITHOUT BY THE COMPLETE REMOVAL OF THE EXTERNAL COAT OF THE EYEBALL. RIGHT EYE, SEEN FROM ABOVE AND BEHIND, WITH THE TEMPORAL SURFACE OF THE EYEBALL ROTATED A LITTLE UPWARDS.

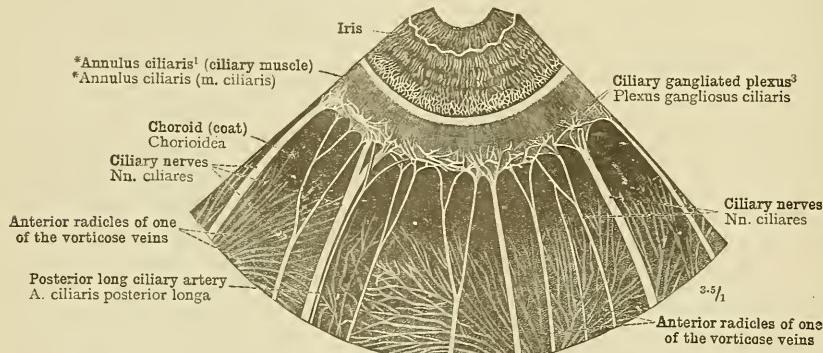


FIG. 1340.—THE CILIARY GANGLIONATED PLEXUS (see Appendix, note 452), PLEXUS GANGLIOSUS CILIARIUS, AND THE CILIARY NERVES ENTERING THIS PLEXUS. OUTER SURFACE OF THE MIDDLE OR VASCULAR COAT OF THE EYEBALL.

¹ See Appendix, note 492.

² See Appendix, note 478.

³ See Appendix, note 463.

Tunica vasculosa *seu* uvea oculi—The middle or vascular coat of the eyeball.

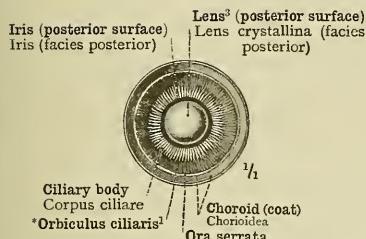


FIG. 1341.—THE INNER SURFACE OF THE ANTERIOR PORTION OF THE CHOROID (COAT), WITH THE LENS. THE CORONA CILIARIS (see Appendix, note 485). SEEN FROM BEHIND.

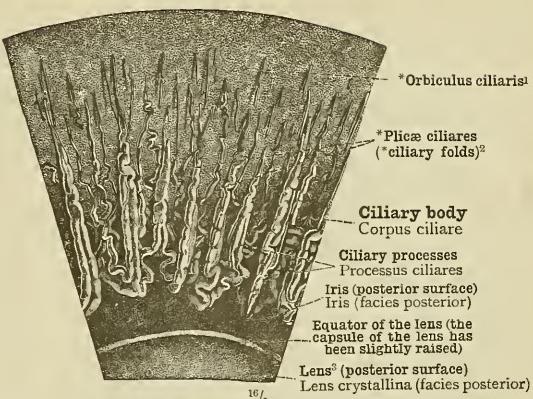


FIG. 1342.—A PORTION OF THE CORONA CILIARIS (see Appendix, note 485), MAGNIFIED. THE CILIARY PROCESSES, PROCESSUS CILIARES, AND THE *CILIARY FOLDS, *PLICÆ CILIARES (see Appendix, note 485).

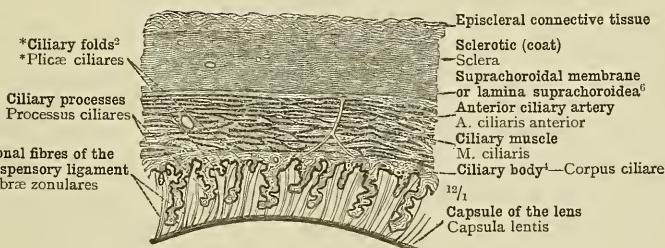


FIG. 1343.—A PORTION OF A CORONAL SECTION THROUGH THE CILIARY BODY, CORPUS CILIARE, AND THE SCLEROTIC (COAT), SCLERA. THE CILIARY PROCESSES AND THE LAYERS OF THE CILIARY MUSCLE, M. CILIARIS, ARE SEEN IN TRANSVERSE SECTION. THE CAPSULE OF THE LENS, WHICH IS ALSO SEEN IN THE SECTION, IS CONNECTED WITH THE CILIARY BODY BY MEANS OF THE FIBRÆ ZONULARES (RADIATING MERIDIONAL FIBRES OF THE ZONULE OF ZINN OR SUSPENSORY LIGAMENT OF THE LENS—see Appendix, note 480).

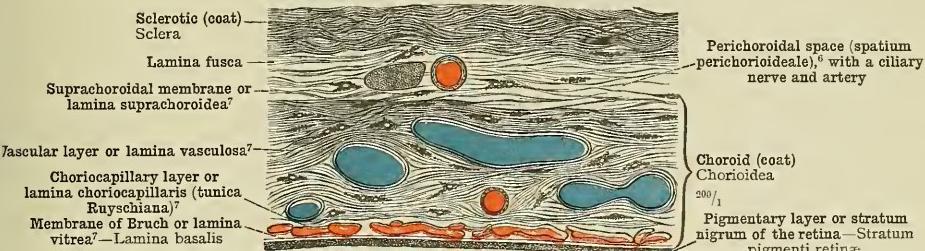


FIG. 1344.—THE LAYERS OF THE CHOROID (COAT), AS SEEN IN A CORONAL SECTION THROUGH THE POSTERIOR SMOOTH PORTION (see Appendix, note 482) OF THAT TUNIC (see Appendix, note 486). IN THE PERICHOROIDAL SPACE, SPATIUM PERICHORIOIDEALE (see Appendix, note 478), A CILIARY ARTERY, A. CILIARIS, AND A CILIARY NERVE, N. CILIARIS, ARE SEEN IN TRANSVERSE SECTION.

¹ See Appendix, note 482.
² See Appendix, note 486.

² See Appendix, note 484.
⁶ See Appendix, note 478.

³ See note ¹ to p. 892.
⁷ See Appendix, note 486.

See Appendix, note 485.

Tunica vasculosa seu uvea oculi—The middle or vascular coat of the eyeball.



FIG. 1345.—THE IRIS OF A DARK BROWN EYE, WITH THE ADJOINING PORTIONS OF THE CHOROID (COAT). SEEN FROM BEFORE.

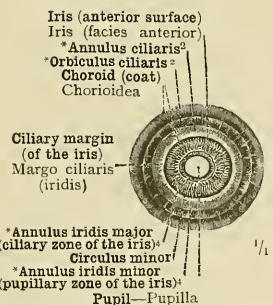


FIG. 1347.—THE IRIS OF A LIGHT GREY EYE, WITH THE ADJOINING PORTIONS OF THE CHOROID (COAT). SEEN FROM BEFORE.

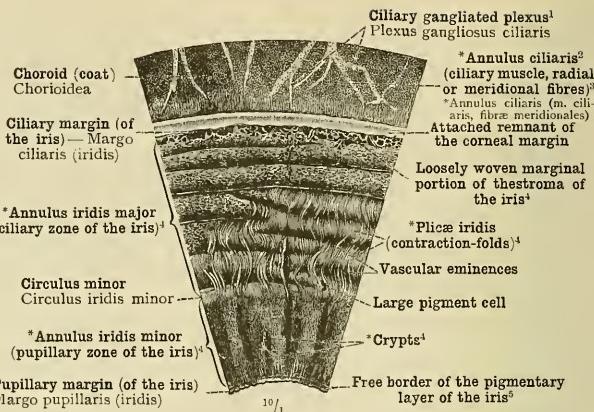


FIG. 1346.—A SECTOR OF THE IRIS DEPICTED IN FIG. 1345, MAGNIFIED. ANTERIOR SURFACE.

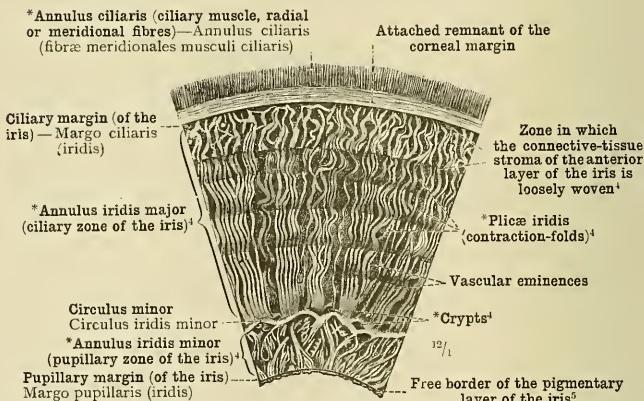


FIG. 1348.—A SECTOR OF THE IRIS DEPICTED IN FIG. 1347. ANTERIOR SURFACE.

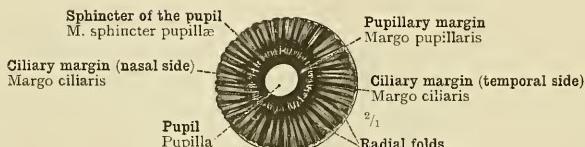


FIG. 1349.—THE POSTERIOR SURFACE, FACIES POSTERIOR, OF THE EXCISED IRIS OF A LIGHT GREY RIGHT EYE, AS SEEN WHEN THE PIGMENTARY LAYER (STRATUM PIGMENTI IRIDIIS—see Appendix, note 488) HAS BEEN COMPLETELY REMOVED. THE PUPIL, PUPILLA, IS NOT PRECISELY CENTRAL IN POSITION, BUT LIES A LITTLE TO THE NASAL SIDE AND ABOVE THE MIDDLE.

¹ See Appendix, note 482.

² See Appendix, note 482.

³ See note 3 to p. 893.

⁴ See Appendix, note 487.

⁵ See Appendix, note 488.

Tunica vasculosa *seu* uvea oculi—The middle or vascular coat of the eyeball.

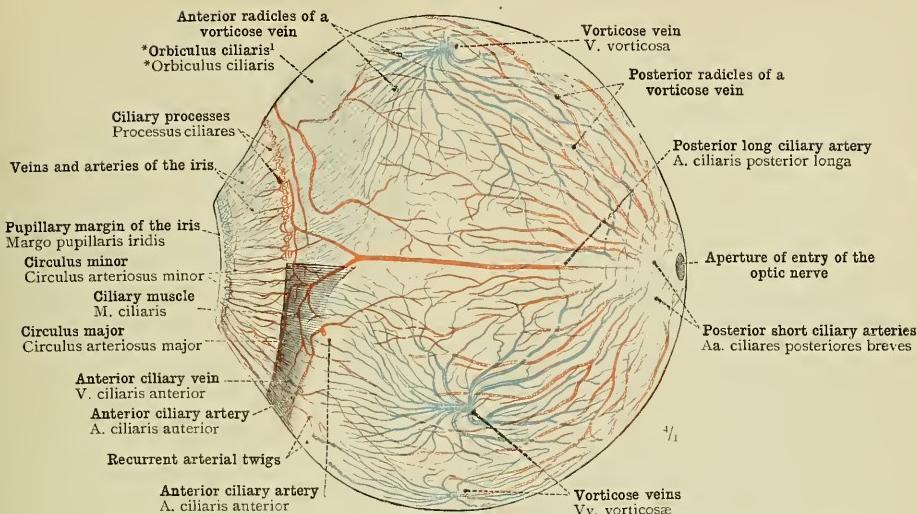


FIG. 1350.—DIAGRAMMATIC REPRESENTATION OF THE ARRANGEMENT OF THE BLOODVESSELS IN THE MIDDLE OR VASCULAR COAT OF THE EYEBALL. AFTER TH. LEEBER. SEEN FROM THE OUTER SURFACE.

In the upper half of the preparation the ciliary muscle, *musculus ciliaris*, has been removed, so as to display the vessels of the ciliary processes.

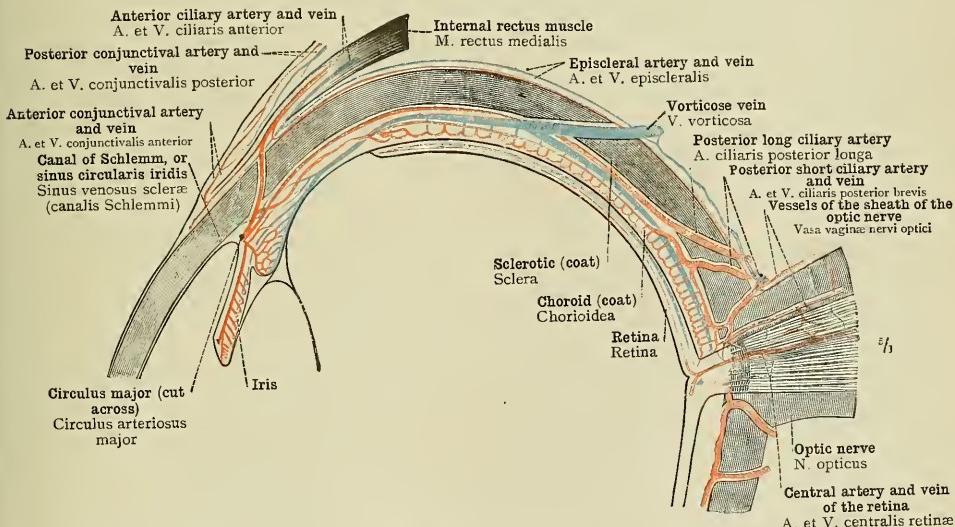


FIG. 1351.—DIAGRAMMATIC REPRESENTATION OF THE COURSE OF THE BLOODVESSELS IN THE EYEBALL. HORIZONTAL SECTION. AFTER TH. LEEBER.

¹ See Appendix, note 4².

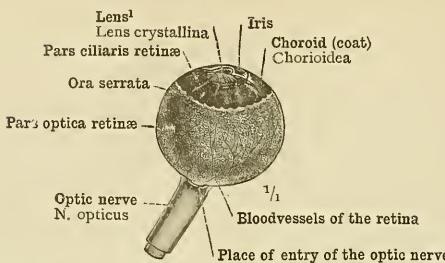


FIG. 1352.—THE INTERNAL COAT OF THE EYEBALL, THE RETINA, IN CONNEXION WITH THE OPTIC NERVE, EXPOSED BY THE REMOVAL OF THE EXTERNAL AND MIDDLE COAT. ITS TWO PARTS, PARS OPTICA AND PARS CILIARIS, WITH THE ORA SERRATA AS THE BOUNDARY BETWEEN THEM. EXTERNAL SURFACE. RIGHT EYE, SEEN FROM ABOVE.

A part of the iris and a part of the ciliary body have been preserved.

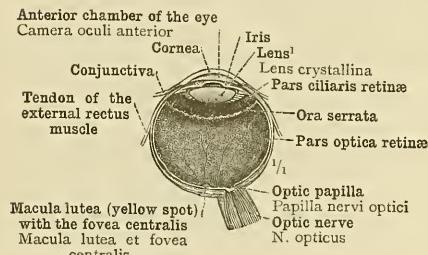


FIG. 1353.—THE RETINA IN CONNEXION WITH THE OPTIC NERVE, EXPOSED IN THE HORIZONTALLY HEMISECTED LEFT EYEBALL BY THE REMOVAL OF THE VITREOUS BODY. LOWER HALF OF THE EYEBALL. THE INTERIOR, SEEN FROM ABOVE.

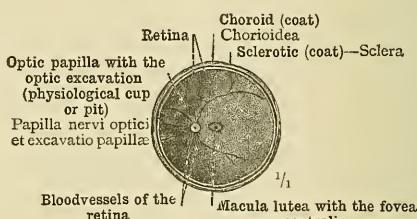


FIG. 1354.—THE POSTERIOR PORTION OF THE RETINA WITH THE OPTIC PAPILLA, PAPILLA NERVI OPTICI, AND THE YELLOW SPOT, MACULA LUTEA, AS SEEN IN A CORONALLY HEMISECTED LEFT EYEBALL. THE INTERIOR, SEEN FROM BEFORE.

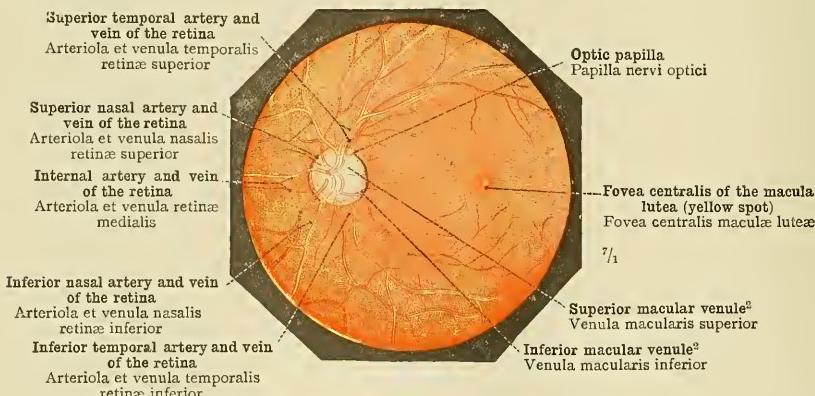


FIG. 1355.—THE FUNDUS OF THE EYEBALL WITH THE BLOODVESSELS OF THE RETINA, AS SEEN IN THE NORMAL LEFT EYE OF A DARK-HAIRED YOUNG MAN. ERECT IMAGE. AFTER E. V. JÄGER.

¹ See note 1 to p. 892.

² See Appendix, note 489.

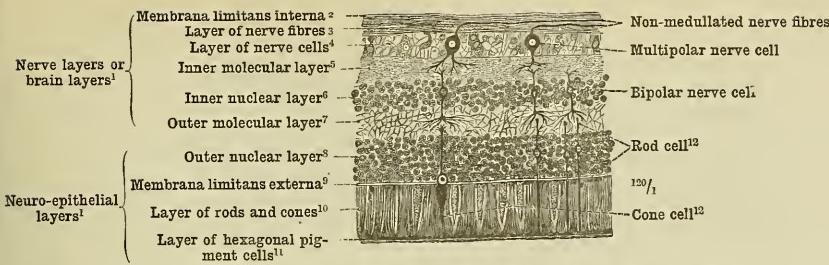


FIG. 1356.—THE LAYERS OF THE RETINA (see notes ¹ to ¹² inclusive), AS SEEN IN A SAGITTAL SECTION THE ARRANGEMENT OF THE ELEMENTARY PARTS IS REPRESENTED DIAGRAMMATICALLY.

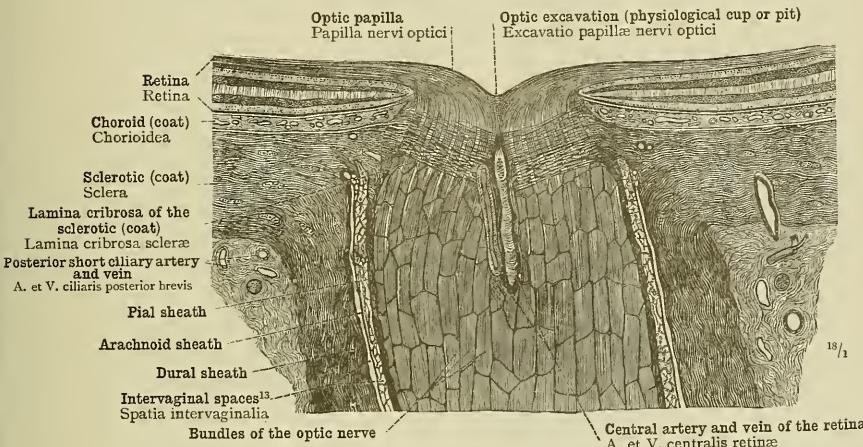


FIG. 1357.—THE TERMINAL PORTION OF THE OPTIC NERVE, N. OPTICUS, AND ITS ENTRANCE INTO THE EYEBALL, IN HORIZONTAL SECTION. THE SHEATHS OF THE OPTIC NERVE, VAGINÆ NERVI OPTICI, IN LONGITUDINAL SECTION.

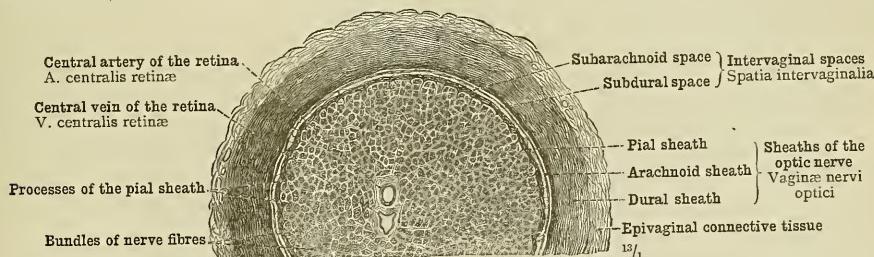


FIG. 1358.—PART OF A TRANSVERSE SECTION OF THE ANTERIOR PORTION OF THE OPTIC NERVE. THE SHEATHS OF THE OPTIC NERVE, VAGINÆ NERVI OPTICI, IN TRANSVERSE SECTION.

- ¹ See Appendix, note 499.
- ² Sometimes spoken of in English as the *internal limiting membrane*.
- ³ On stratum opticum.
- ⁴ Also known as the *ganglion nervi optici*, both in the English and in the official German nomenclature.
- ⁵ Also known as the *inner reticular* or *inner plexiform layer*, and in Latin as the *neurospongium* or as the *stratum reticulare internum*.
- ⁶ Also known as the *stratum granulosum internum* or *ganglion retinae*.
- ⁷ Also known as the *outer reticular* or *outer plexiform layer*, and in Latin as the *stratum reticulare externum*.
- ⁸ Also known as the *stratum granulosum exterum*.
- ⁹ Sometimes spoken of in English as the *external limiting membrane*.
- ¹⁰ Also known as the *bacillary layer*, or *stratum bacillorum*.
- ¹¹ The *pigmentary layer* of the retina is also known as the *stratum nigrum*; in the official German nomenclature it is the *stratum pigmentum retinae*.
- ¹² See Appendix, note 491.
- ¹³ Sometimes separately classed as *subdural* and *subarachnoid spaces of the optic nerves*. (See Fig. 1358.)

The Retina (the Internal Coat of the Eyeball).—*Nervus opticus*—The optic nerve.

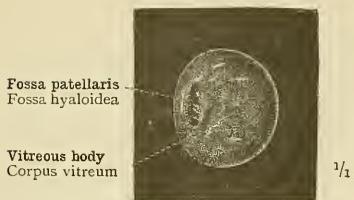


FIG. 1359.—THE VITREOUS BODY, CORPUS VITREUM, REMOVED FROM THE EYE IN THE FRESH STATE, WITH THE SAUCER-SHAPED HOLLOW, FOSSA PATELLARIS (FOSSA HYALOIDEA), IN WHICH THE LENS LIES. SEEN OBLIQUELY FROM THE SIDE AND BEFORE.

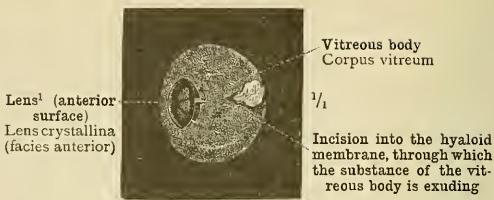


FIG. 1360.—THE VITREOUS BODY, CORPUS VITREUM, WITH THE LENS, LENS CRYSTALLINA, REMOVED FROM THE EYE IN THE FRESH STATE. THROUGH A SMALL INCISION IN THE HYALOID MEMBRANE, MEMBRANA HYALOIDEA, A PART OF THE SUBSTANCE OF THE VITREOUS BODY, CORPUS VITREUM, HAS EXUDED.

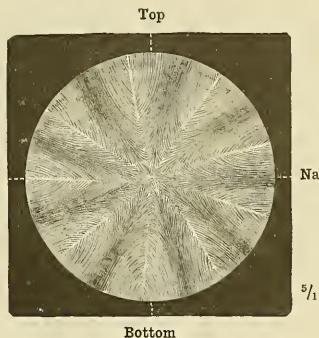


FIG. 1361.—ANTERIOR SURFACE, FACIES ANTERIOR. FIG. 1362.—POSTERIOR SURFACE, FACIES POSTERIOR.

THE LENS OF THE EYE, LENS CRYSTALLINA (*see note¹ to p. 892*), REMOVED FROM THE BODY WITHIN A FEW HOURS AFTER DEATH, AND DEPICTED LIVING IN FORMALIN SOLUTION WITH THE AID OF THE STEREOSCOPIC MICROSCOPE. COURSE AND ARRANGEMENT OF THE LENS FIBRES, FIBRÆ LENTIS.

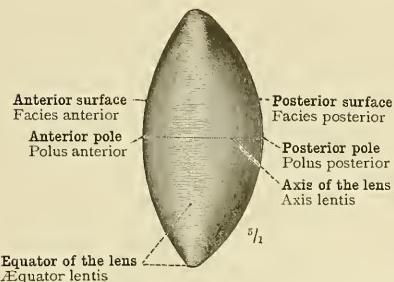
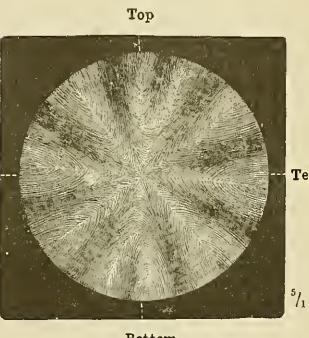


FIG. 1363.—THE TERMS USED IN THE ORIENTATION OF THE LENS.

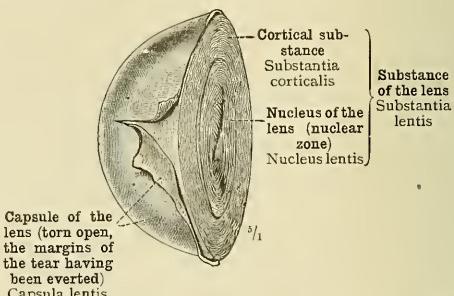


FIG. 1364.—HALF OF THE LENS WITH THE CAPSULE OF THE LENS PARTIALLY PEELED OFF.

The fresh lens was hemisected, and was drawn after it had been allowed to lie in water for twenty-four hours.

¹ See note¹ to p. 892.

Corpus vitreum—The vitreous body.—Lens crystallina—The lens.

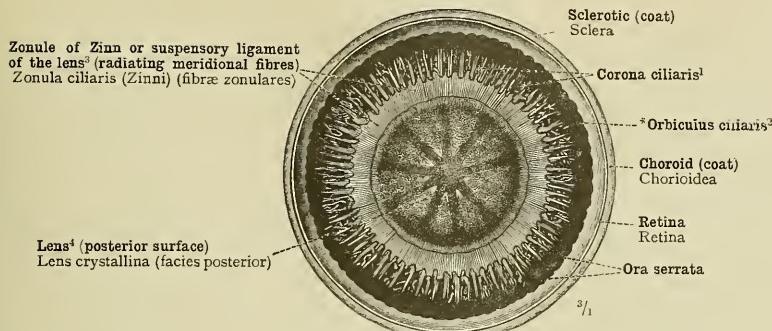


FIG. 1365.—THE ZONULE OF ZINN OR SUSPENSORY LIGAMENT OF THE LENS, ZONULA CILIARIS ZINNI (see Appendix, note ⁴⁸⁹), VIEWED FROM BEHIND, IN CONNEXION WITH THE LENS AND THE CILIARY BODY.

IN AN EYEBALL REMOVED FROM THE BODY WITHIN A FEW HOURS AFTER DEATH, THE CORNEA WAS EXCISED, THE IRIS COMPLETELY REMOVED, AND THE EYEBALL WAS THEN CUT IN TWO A LITTLE IN FRONT OF THE EQUATOR. THE ZONULE OF ZINN OR SUSPENSORY LIGAMENT OF THE LENS, ZONULA CILIARIS ZINNI (see Appendix, note ⁴⁸⁹), WAS NOW VISIBLE IN THE ANTERIOR SEGMENT OF THE EYE, COVERED ONLY BY THE PERFECTLY TRANSPARENT VITREOUS SUBSTANCE. THE PREPARATION WAS THEN IMMERSSED IN 3 PER CENT. FORMALIN SOLUTION, AND WAS DRAWN IMMEDIATELY WITH THE AID OF THE STEREOSCOPIC MICROSCOPE, THE ILLUMINATION BEING PARTLY BY DIRECT, PARTLY BY TRANSMITTED LIGHT.

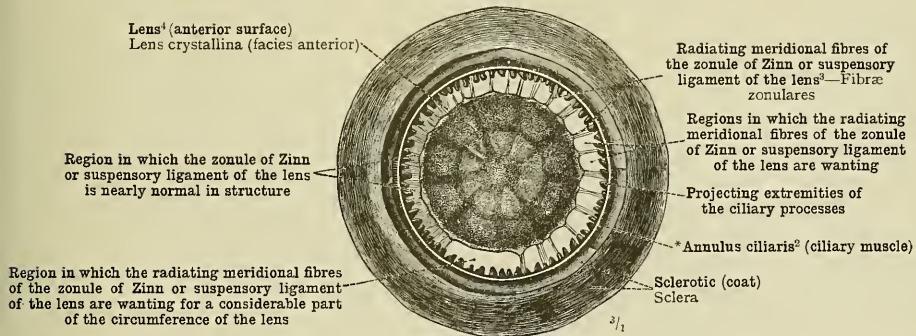


FIG. 1366.—A CASE OF INCOMPLETE DEVELOPMENT OF THE ZONULE OF ZINN OR SUSPENSORY LIGAMENT OF THE LENS, ZONULA CILIARIS ZINNI (see Appendix, note ⁴⁸⁹), INTRODUCED TO SHOW THE NATURE OF THE TRACTION WHICH IS EXERCISED BY THE ZONULE ON THE LENS. SEEN FROM BEFORE.

THE LENS IS SEEN TO BE DRAWN AS A WHOLE TOWARDS THAT SIDE ON WHICH A PORTION OF THE ZONULE IS ALMOST FULLY DEVELOPED. IN THOSE REGIONS IN WHICH THE RADIATING MERIDIONAL FIBRES OF THE ZONULE (FIBRÆ ZONULARES) ARE DEVELOPED IN ISOLATED SLENDER BUNDLES ONLY, THE MARGIN OF THE LENS IS NOTABLY DRAWN OUTWARDS AT THE POINTS WHERE THESE BUNDLES ARE INSERTED. GENERALLY SPEAKING, ALL ALONG THE EQUATOR OF THE LENS THE CAPSULE IS SEEN TO BE DRAWN A LITTLE AWAY FROM THE SUBSTANCE OF THE LENS.

The specimen was freshly prepared in the same manner as described at the foot of Fig. 1365.

¹ See Appendix, note ⁴⁸⁵.

² See Appendix, note ⁴⁸².

³ See Appendix, note ⁴⁸⁰.

⁴ See note ¹ to p. 892.

Zonula ciliaris (Zinni)—The zonule of Zinn or suspensory ligament of the lens.

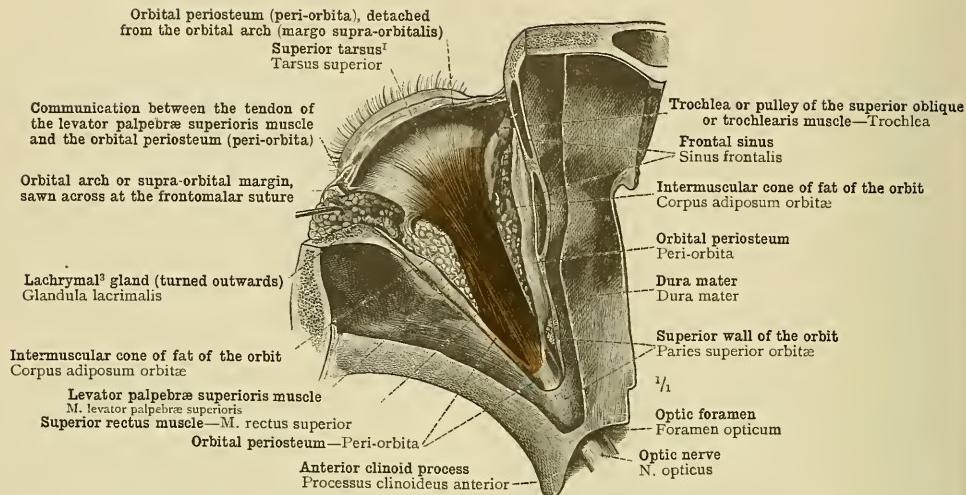


FIG. 1367.—THE LEVATOR PALPEBRAE SUPERIORIS MUSCLE, SEEN FROM ABOVE.

Displayed by cutting away the upper wall of the left orbit and the partial removal of the orbital periosteum (peri-orbita). The lachrymal gland has been drawn outwards.

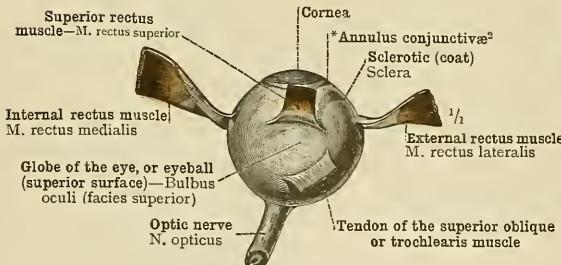


FIG. 1368.—THE INSERTIONS OF THE SUPERIOR, EXTERNAL, AND INTERNAL RECTUS MUSCLES INTO THE EYEBALL; ALSO THAT OF THE SUPERIOR OBLIQUE OR TROCHLEARIS MUSCLE. RIGHT EYE. SEEN FROM ABOVE.

The extremities of the muscles have been raised from the eyeball and inverted.

* See Appendix, note 492.

² The spelling *lacrimal*, etymologically more correct than *lachrymal*, is used by some English writers. The form *lachrymal* is, however, in far more general use.

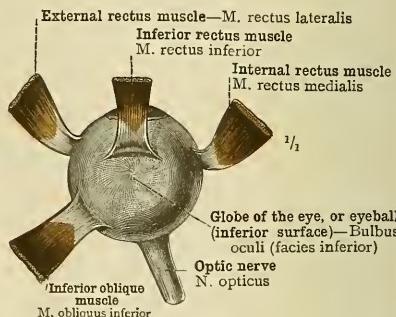


FIG. 1369.—THE INSERTIONS INTO THE EYEBALL OF THE INFERIOR, INTERNAL, AND EXTERNAL RECTUS MUSCLES; ALSO THAT OF THE INFERIOR OBLIQUE MUSCLE. RIGHT EYE. SEEN FROM BELOW.

The extremities of the muscles have been raised from the eyeball and inverted.

Musculi oculi—The muscles of the eyeball.

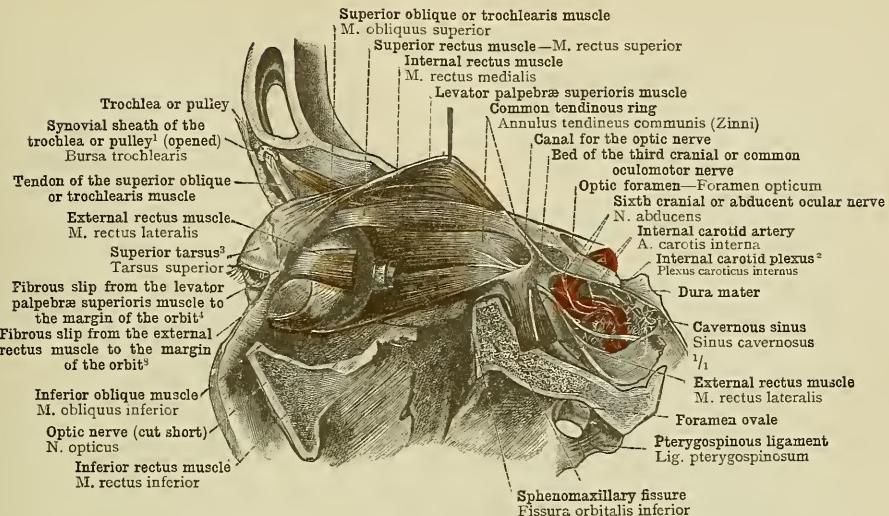


FIG. 1370.—THE MUSCLES OF THE ORBIT FROM THE TEMPORAL SIDE. LEFT EYE.
After the superior and external walls of the orbit had been removed, the external rectus muscle was cut across, its posterior segment was turned downwards, and the optic nerve was excised.

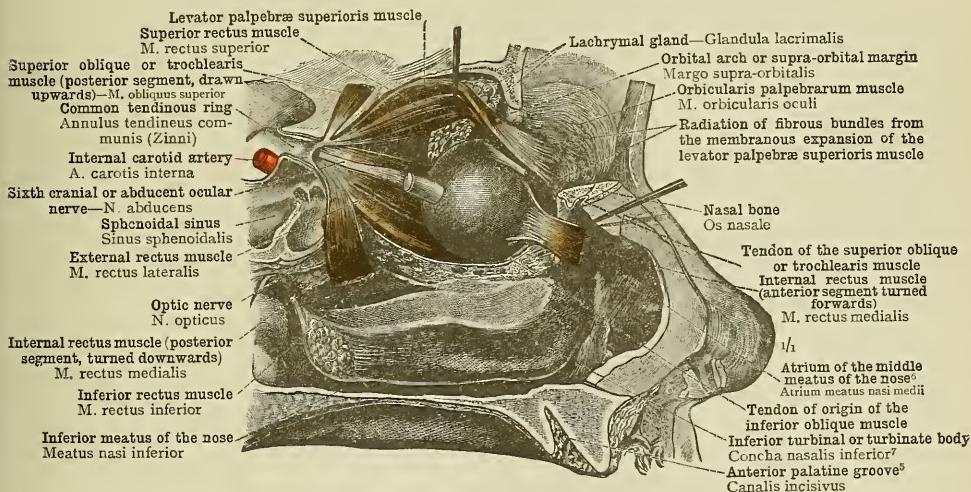


FIG. 1371.—THE MUSCLES OF THE ORBIT FROM THE NASAL SIDE. LEFT EYE.

After the internal and part of the superior walls of the orbit had been removed, the intertarsal muscle was cut across, its anterior segment being turned forwards, its posterior segment downwards, and the optic nerve was excised. Of the superior oblique or trochlearis muscle, the posterior extremity and a portion of the tendon of insertion were retained; the inferior oblique muscle was cut across near its origin.

¹ See Appendix, note 494.
⁶ By Macalister called the

See note 3 to p. 859.

³ See Appendix, note 492.
⁷ See note * to p. 944.

⁴ See Appendix, note 495. ⁵ See Appendix, note 45^a.
⁸ Or outer check ligament, see Appendix, note 495.

Musculi oculi—The muscles of the eyeball.

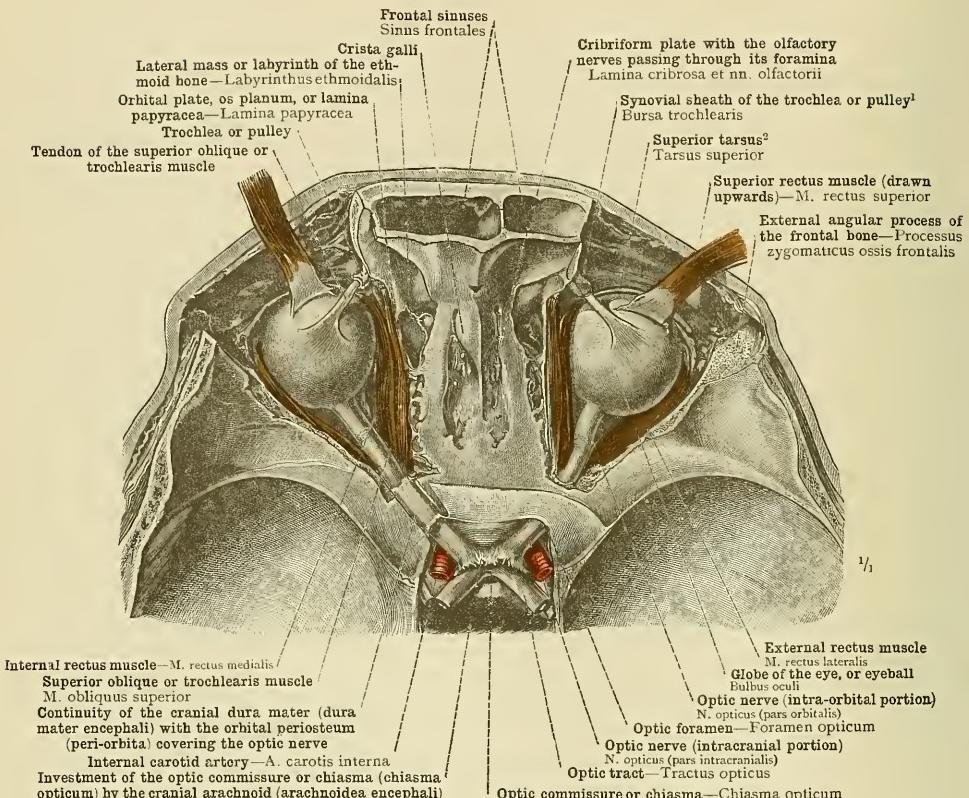


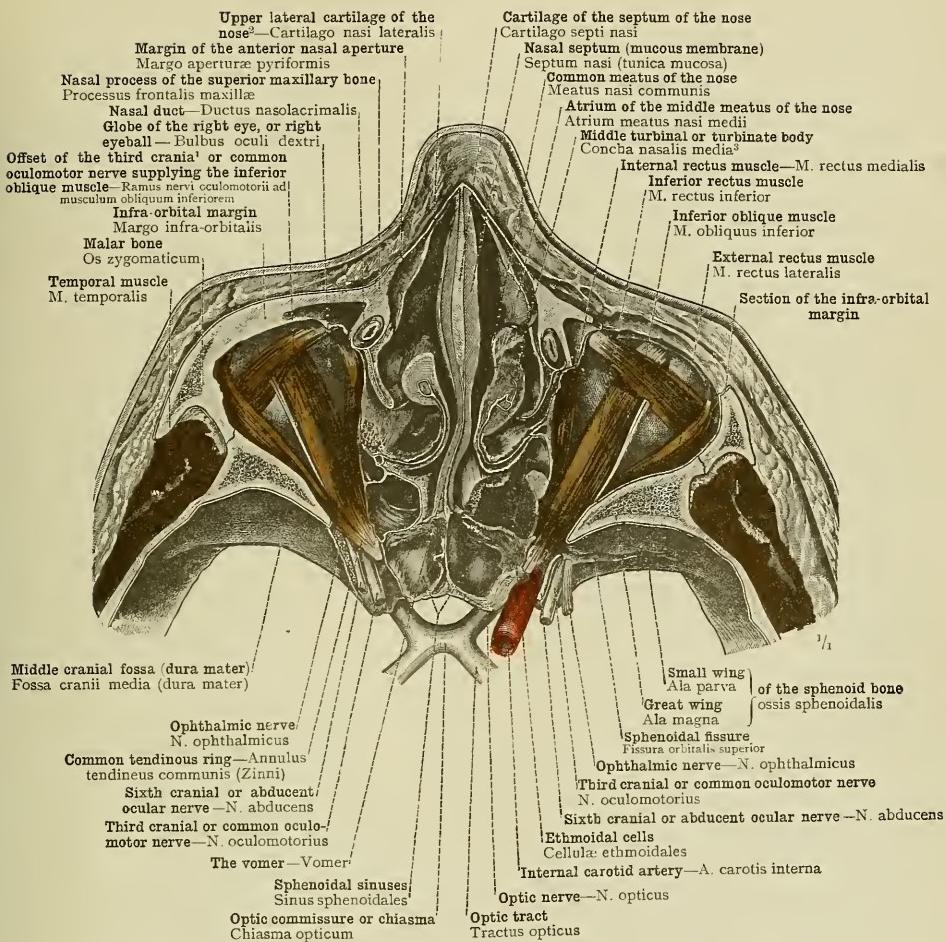
FIG. 1372.—THE POSITION OF THE EYEBALL AND THE OPTIC NERVE IN THE ORBIT, AND THE RELATIONS OF THE MUSCLES OF THE ORBIT TO THESE STRUCTURES. SEEN FROM ABOVE. THE MUTUAL RELATIONS OF THE POSTERIOR (INTRACRANIAL) PORTION OF THE OPTIC NERVE AND THE INTERNAL CAROTID ARTERY, AND THE POSITION OF THE OPTIC COMMISSURE OR CHIASMA OPTICUM, IN RELATION TO THE PITUITARY FOSSA, FOSSA HYPOPHYSIS, AND TO THE *LIMBUS SPHENOIDALIS.³

The superior and part of the external walls of the orbits having been cut away, the levator palpebrae superioris muscles were entirely removed, and the rectus superior muscles were detached from their origins and turned forwards. On the left side the optic foramen was opened from above, in order to show the connexion between the cranial dura mater and the orbital periosteum (peri-orbita).

¹ See Appendix, note 44.

² See Appendix, note 49.

³ **Limbus Sphenoidalis*.—This name is given by Von Langer and Toldt to the slight ridge which connects the anterior margins of the optic foramina, and forms the anterior boundary of the optic groove in which the optic commissure lies. It is the boundary also between the middle portions of the anterior and middle cranial fossae. It is left unnamed by Quain, nor is it indicated by name in the osteological section of this Atlas.



¹ By Macalister called the *region of the atrium*.
² The upper lateral cartilages are by Macalister called the *lateral expansions of the septal cartilage*.

³ See note ² to p. 944.

FIG. 1373.—THE POSITION OF THE EYEBALL IN THE ORBIT, AND THE RELATIONS OF THE MUSCLES OF THE ORBIT TO THE EYEBALL. SEEN FROM BELOW.

In the facial portion of a head previously hardened in chromic acid and alcohol, a horizontal section was carried backwards beneath the infra-orbital margins through the body of the sphenoid bone and the inner portions of the sphenoidal fissures. In the upper segment, by the removal of the orbital cone of fat, the orbital muscles accessible from below have been displayed. On the left side the infra-orbital margin has been completely removed.

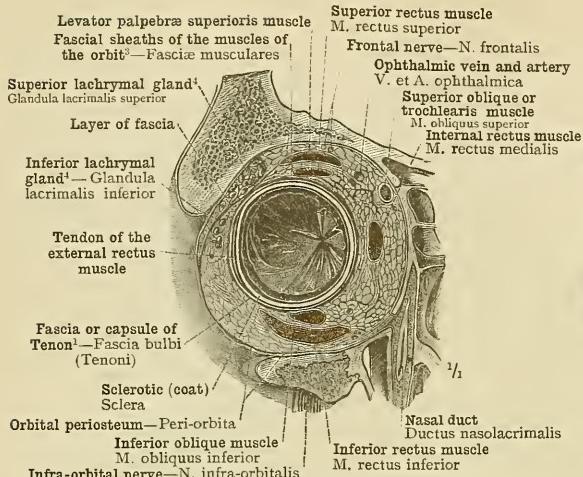


FIG. 1374.—THE POSITION OF THE EYEBALL AND OF THE MUSCLES OF THE ORBIT, AS SEEN IN A CORONAL SECTION THROUGH THE RIGHT ORBIT OF A HEAD FIRST HARDENED IN CHROMIC ACID AND ALCOHOL, AND SUBSEQUENTLY DECALCIFIED IN HYDROCHLORIC ACID.

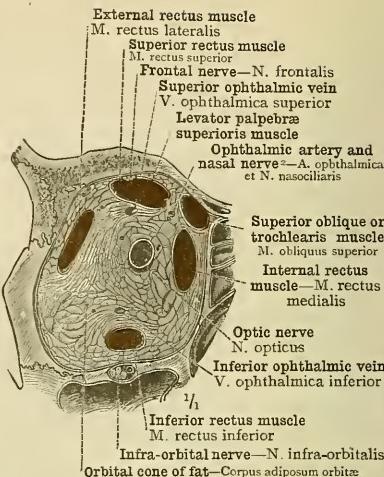


FIG. 1375.—THE POSITION OF THE OPTIC NERVE AND OF THE MUSCLES OF THE ORBIT, AS SEEN IN A CORONAL SECTION THROUGH THE RIGHT ORBIT OF A HEAD FIRST HARDENED IN CHROMIC ACID AND ALCOHOL, AND SUBSEQUENTLY DECALCIFIED IN HYDROCHLORIC ACID.

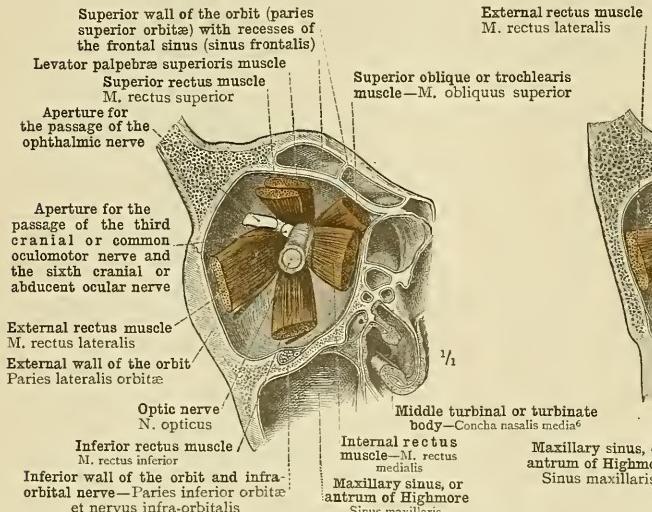


FIG. 1376.—POSITION AND DIRECTION OF THE MUSCLES OF THE ORBIT IN RELATION TO THE OPTIC NERVE, AS SEEN IN THE POSTERIOR SEGMENT OF A CORONALLY DIVIDED RIGHT ORBIT. THE HEAD WAS PREVIOUSLY HARDENED IN CHROMIC ACID AND ALCOHOL.

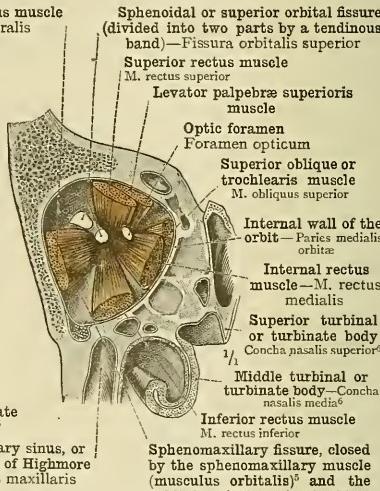


FIG. 1377.—POSITION OF THE MUSCLES OF THE ORBIT IN RELATION TO THE OPTIC FORAMEN AND THE SPHENOIDAL OR SUPERIOR OREITAL FISSURE, AS SEEN IN THE POSTERIOR SEGMENT OF A CORONALLY DIVIDED RIGHT ORBIT. THE HEAD WAS PREVIOUSLY HARDENED IN CHROMIC ACID AND ALCOHOL.

¹ Sometimes called *tunica vaginalis oculi*.

² See Appendix, note 495.

³ Also known as the *oculomotor nerve* and the *nasociliary nerve*.

⁴ See Appendix, note 505.

⁵ See Appendix, note 438.

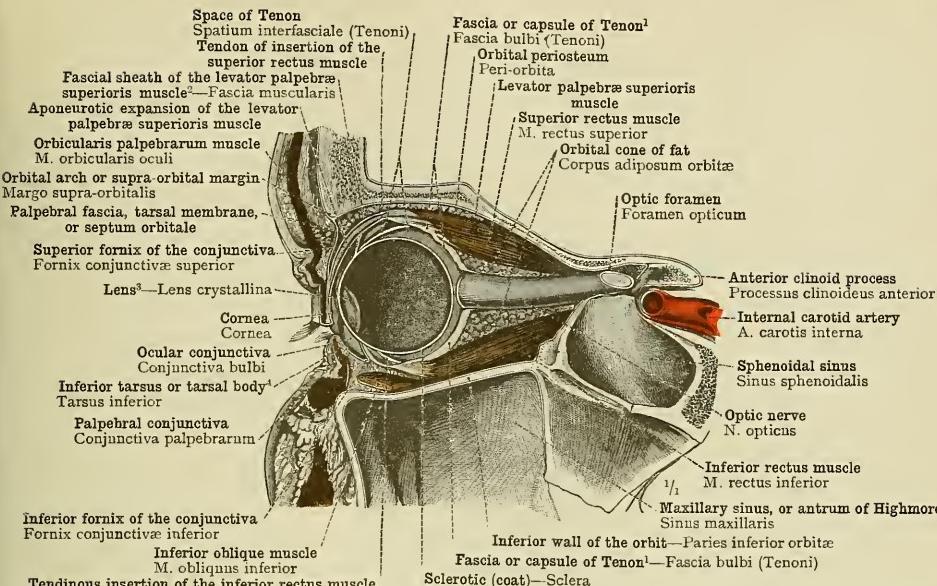


FIG. 1378.—FASCIA OR CAPSULE OF TENON,¹ FASCIA BULBI, AND ITS RELATION TO THE TENDONS OF THE SUPERIOR AND INFERIOR RECTUS MUSCLES (see Appendix, note ⁴⁹⁵).

The right orbit of a head previously hardened in chronic acid and alcohol was divided sagittally in such a manner that the section passed through the nasal half of the eyeball and opened the optic foramen on the nasal side of the optic nerve. The fascia or capsule of Tenon has been withdrawn a little from the surface of the eyeball.

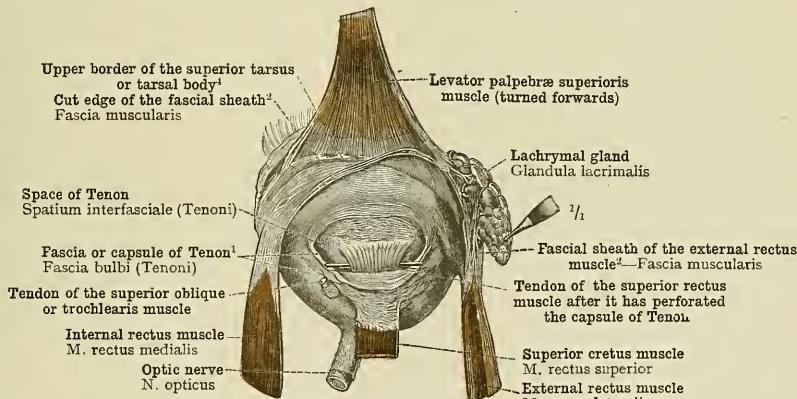


FIG. 1379.—FASCIA OR CAPSULE OF TENON, AND ITS RELATION TO THE TENDON OF THE SUPERIOR RECTUS MUSCLE, AS SEEN FROM ABOVE IN THE EXCISED RIGHT EYE.

The levator palpebrae superioris muscle has been turned forwards, and the capsule of Tenon has been opened by a transverse incision in the region of the tendon of the superior rectus muscle.

¹ Sometimes called *tunica vaginalis oculi*.

² See Appendix, note 495.

³ See note ² to p. 892.

⁴ See Appendix, note 492.

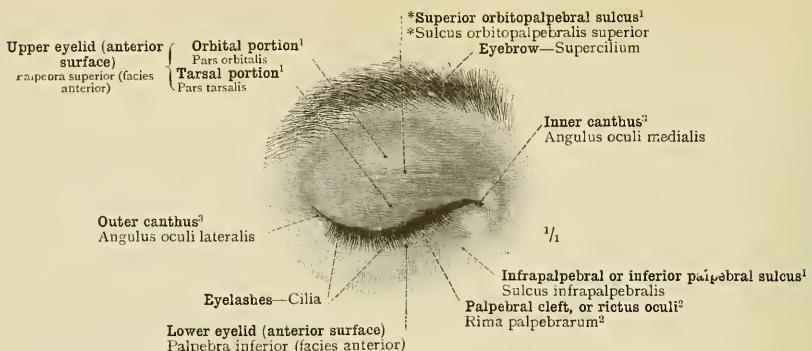


FIG. 1380.—THE CLOSED EYELIDS OF THE RIGHT EYE OF A YOUNG WOMAN, REPRODUCED FROM A LIFE-SIZED PHOTOGRAPH. ANTERIOR SURFACE OF THE EYELIDS, FACIES ANTERIOR PALPEBRARUM.

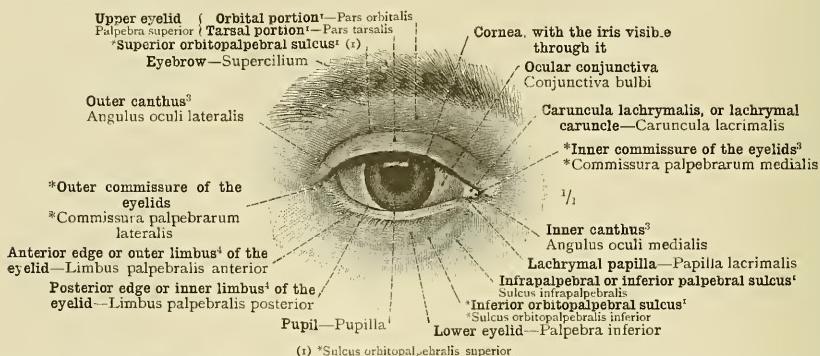


FIG. 1381.—THE SAME EYELIDS WITH THE EYE OPEN, REPRODUCED FROM A LIFE-SIZED PHOTOGRAPH. THE PALPEBRAL CLEFT, RICTUS OCULI, OR RIMA PALPEBRARUM (see Appendix, note 497).

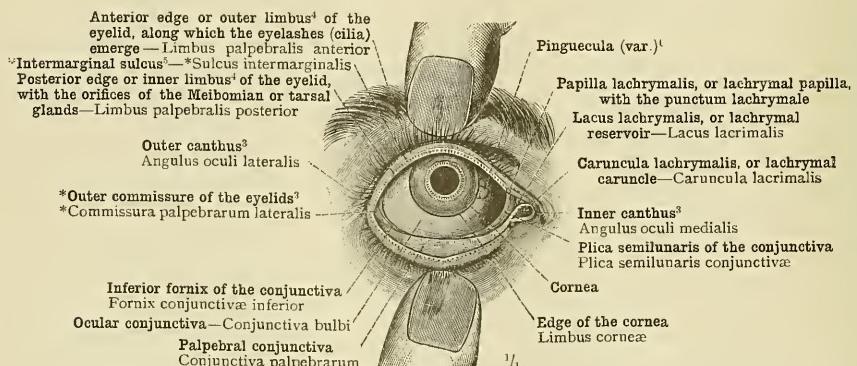


FIG. 1382.—THE WIDELY-OPENED EYELIDS OF THE RIGHT EYE OF AN ELDERLY PERSON. THE LOWER EYELID HAS BEEN EVERTED. PINGUECULA.

¹ See Appendix, note 495.

² See Appendix, note 497.

³ See Appendix, note 498.

⁴ The term *limbus* in connexion with the eyelid is used by Macalister, but not by Quain. The former writer speaks indifferently of the *limbus anterior* or *outer limbus*, and of the *limbus posterior* or *inner limbus* (*op. cit.*, p. 522; and Fig. 712, p. 643).

⁵ See Appendix, note 499.

⁶ See Appendix, note 500.



FIG. 1383.—THE POSTERIOR SURFACE OF THE EXCISED EYELIDS, FACIES POSTERIOR PALPEBRARUM. IN THE REGION OF THE Tarsi OR TARSAL MEMBRANES, THE MEIBOMIAN OR TARSAL GLANDS ARE VISIBLE BENEATH THE CONJUNCTIVA. RIGHT SIDE.

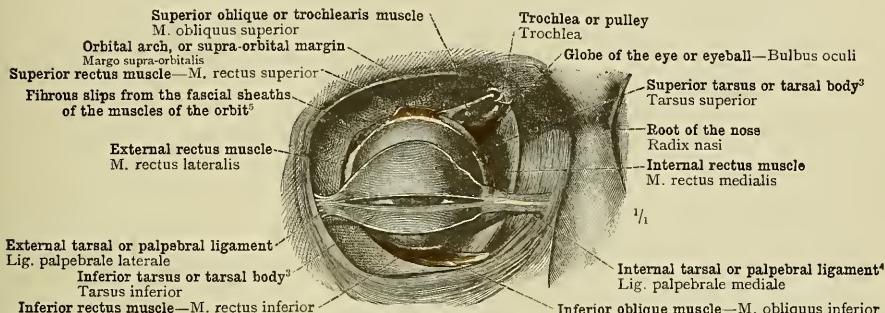


FIG. 1384.—THE SUPERIOR AND INFERIOR Tarsi OR TARSAL BODIES, TARSUS SUPERIOR ET TARSUS INFERIOR (see Appendix, note ⁴⁹²), OF THE RIGHT EYE, WITH THE INTERNAL TARSAL OR PALPEBRAL LIGAMENT, LIGAMENTUM PALPEBRALE MEDIALE (see note ⁴ below), AND THE EXTERNAL TARSAL OR PALPEBRAL LIGAMENT, LIGAMENTUM PALPEBRALE LATERALE, ISOLATED. THEIR RELATIONS TO THE EYEBALL WHEN THE LIDS ARE CLOSED. THE ATTACHMENT OF THE RECTI MUSCLES TO THE EYEBALL, AND THE COURSE OF THE OBLIQUE MUSCLES. VIEWED FROM BEFORE.

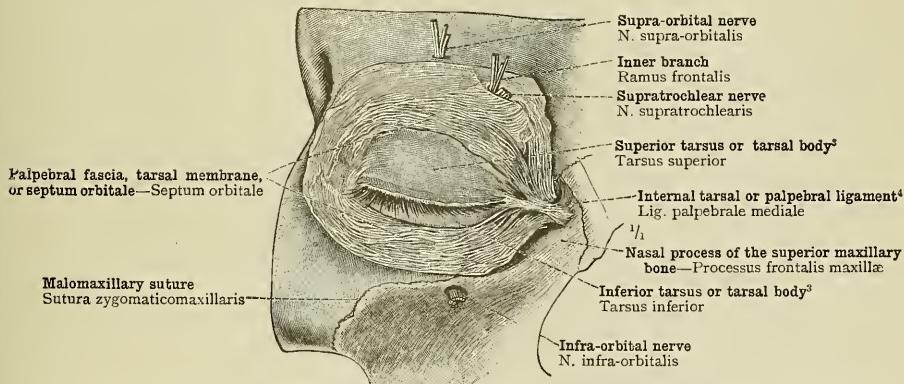


FIG. 1385.—THE PALPEBRAL FASCIA, TARSAL MEMBRANE, OR SEPTUM ORBITALE, IN CONNEXION WITH THE Tarsi OR TARSAL BODIES (see Appendix, note ⁴⁹²), DISPLAYED FROM BEFORE BY THE REMOVAL OF THE SKIN AND THE ORBICULARIS PALPEBRARUM MUSCLE. RIGHT SIDE.

¹ See Appendix, note ⁵⁰⁴.
⁴ Known also as the tendon of the orbicularis muscle, or *tendo palpebrarum*.

² See Appendix, note ⁵⁰².

³ See Appendix, note ⁴⁹².

⁵ See Appendix, note ⁴⁹⁵.

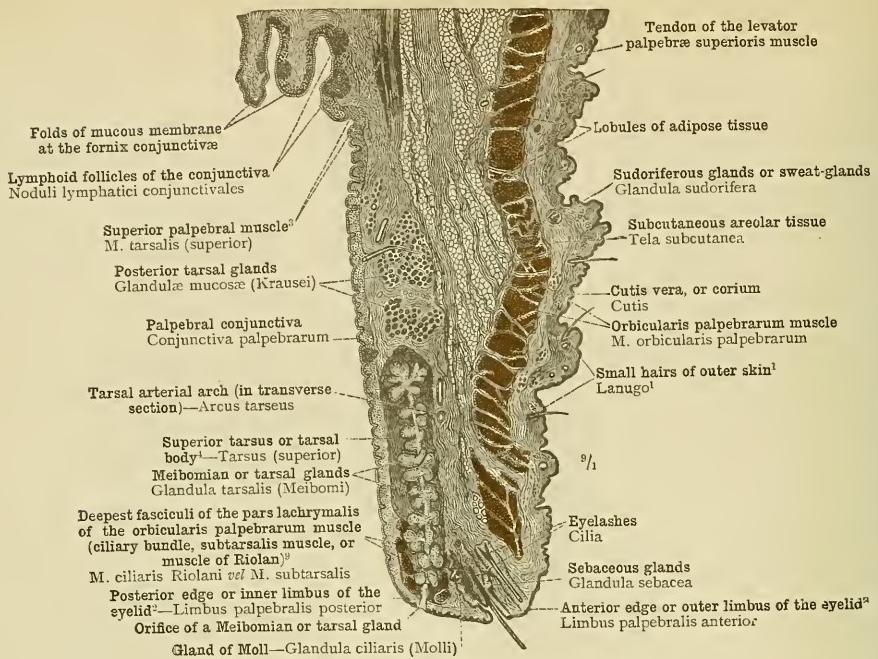
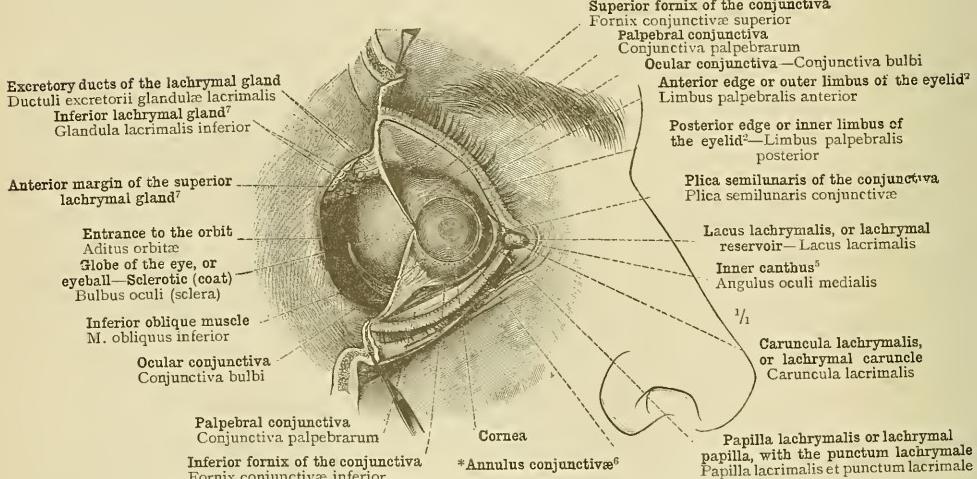


FIG. 1386.—THE UPPER EYELID IN SAGITTAL SECTION.

FIG. 1387.—THE CONJUNCTIVA OF THE RIGHT EYE. ITS THREE PARTS: THE PALPEBRAL CONJUNCTIVA, CONJUNCTIVA PALPEBRARUM; THE OCULAR CONJUNCTIVA, CONJUNCTIVA BULBI; AND ITS REFLECTION ALONG THE FORNICES.⁸ THE EYELIDS WERE SEPARATED BY DIVISION OF THE OUTER CANTHUS (see Appendix, note 498), AND A HORIZONTAL INCISION CARRIED THENCE THROUGH THE CONJUNCTIVA INWARDS TO THE MARGIN OF THE CORNEA.¹ See Appendix, note 593.² See Appendix, note 493.³ See Appendix, note 493.⁴ This part of the conjunctiva is in the German original called *dcr Übergangsteil*, the transitional part. No Latin term is used.⁵ See Appendix, note 502.² See note 4 to p. 908.⁶ See Appendix, note 493.⁷ See Appendix, note 593.³ See Appendix, note 594.⁷ See Appendix, note 593.⁴ See Appendix, note 492.

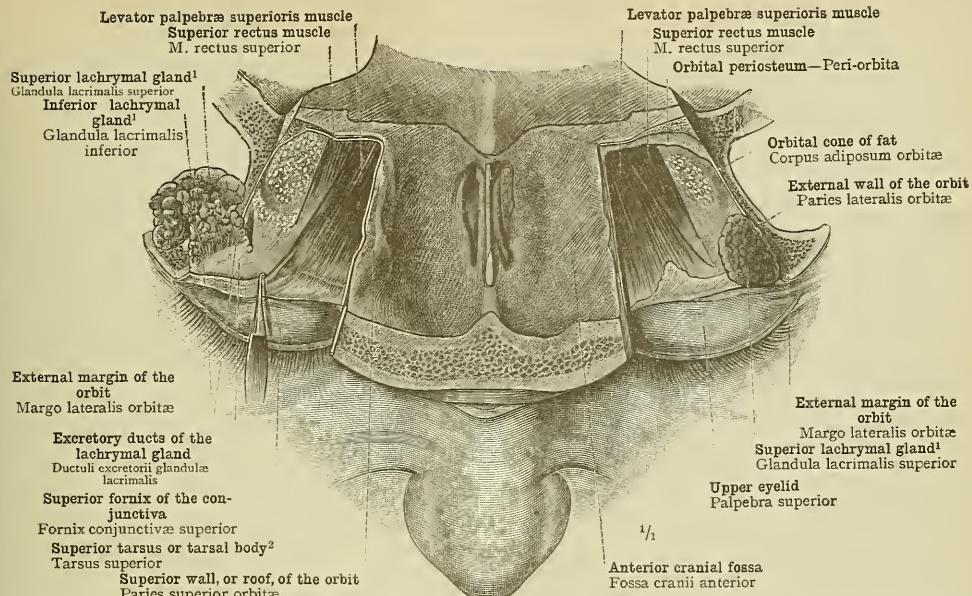


FIG. 1388.—THE LACHRYMAL GLAND, GLANDULA LACHRYMALIS (see Appendix, note ⁵⁰⁵), DISPLAYED BY OPENING THE ORBIT FROM ABOVE. THE LEFT LACHRYMAL GLAND IS SEEN IN ITS NATURAL POSITION, BUT THE RIGHT GLAND, IN ORDER TO EXPOSE ITS EXCRETORY DUCTS, HAS BEEN TURNED BACKWARDS.

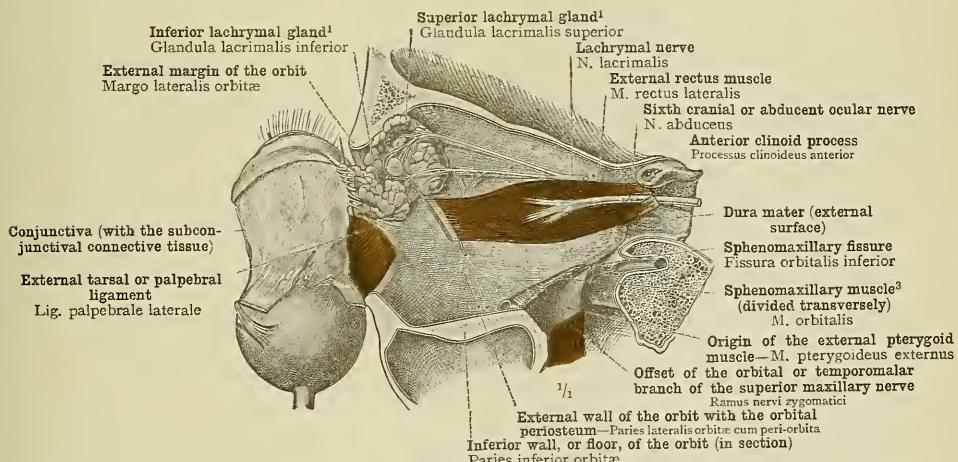


FIG. 1389.—THE NATURAL POSITION OF THE LACHRYMAL GLAND, IN RELATION TO THE WALL OF THE ORBIT AND TO THE EXTERNAL TARSAL OR PALPEBRAL LIGAMENT. OUTER HALF OF THE RIGHT ORBIT.

The eyeball, together with the fully-exposed conjunctiva, the folds of which have been obliterated by tension, has been withdrawn from the orbit. The excretory ducts, ductuli excretori, of the lachrymal gland have been slightly raised by means of a probe which has been passed beneath them.

¹ See Appendix, note ⁵⁰⁵.

² See Appendix, note ⁴⁹⁷.

³ See Appendix, note ⁴⁵².

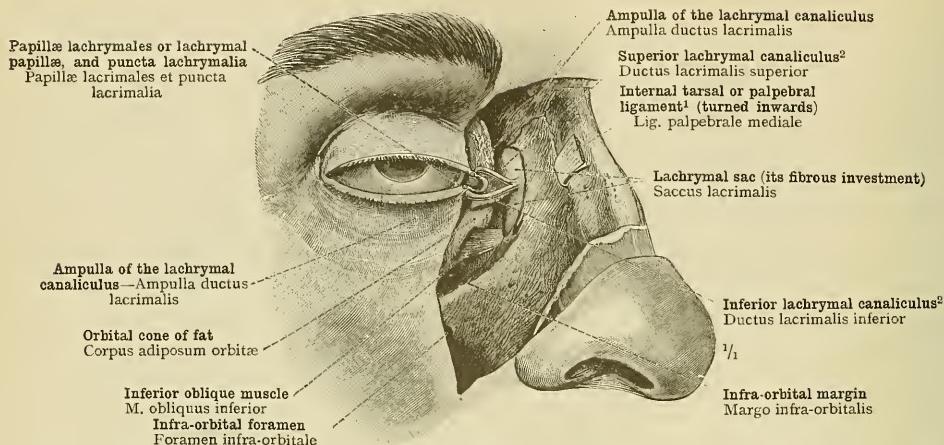


FIG. 1390.—THE LACHRYMAL SAC, SACCUS LACRIMALIS, WITH THE LACHRYMAL CANALICULI, DUCTUS LACRIMALES, DISPLAYED BY THE REMOVAL OF THE SKIN, THE INTERNAL TARSAL OR PALPEBRAL LIGAMENT¹, THE ORBICULARIS PALPEBRARUM MUSCLE, AND THE OTHER FACIAL MUSCLES IN THE NEIGHBOURHOOD. THE FIBROUS INVESTMENT OF THE LACHRYMAL SAC IS EXPOSED. RIGHT SIDE.

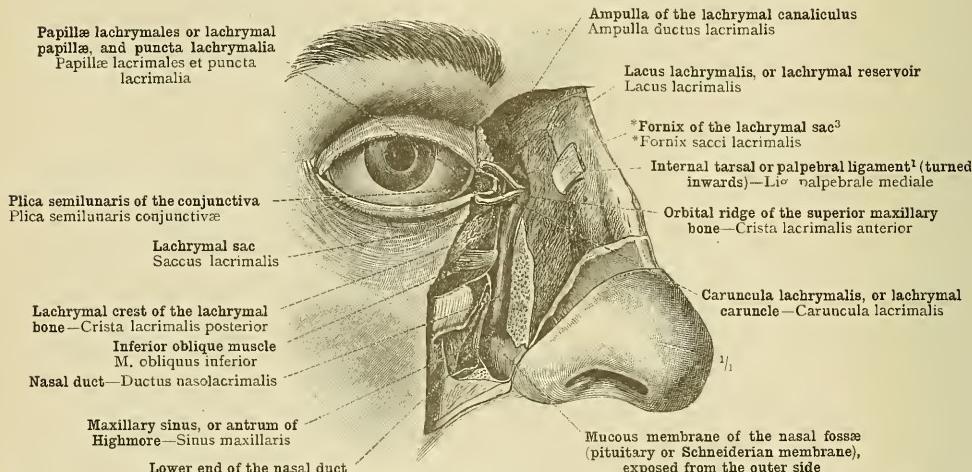


FIG. 1391.—THE LACHRYMAL SAC, SACCUS LACRIMALIS, WITH THE LACHRYMAL CANALICULI, DUCTUS LACRIMALIS, AND THE NASAL DUCT, DUCTUS NASOLACRIMALIS, OF THE RIGHT SIDE.

In the preparation shown in Fig. 1390, the substance of the superior maxillary bone was removed from without inwards as far as the lachrymal groove, sulcus lacrimalis, and the anterior and external walls of the nasal duct, ductus nasolacrimalis, were thus exposed up to the point at which these walls become continuous with mucous membrane of the nasal fossæ. The fibrous investment of the lachrymal sac was also removed, so that the outer side of the mucous membrane, alike of the lachrymal sac and of the nasal duct, is exposed to view.

¹ Known also as the tendon of the orbicularis muscle, or *tendo palpebrarum*.

² *Lachrymal Canaliculi*.—Quain speaks of these as the *lachrymal canals*, but this usage is exceptional.

³ **Fornix of the Lachrymal Sac*.—The name of *fornix sacci lacrimalis* is given by Toldt to the upper blind extremity of the lachrymal sac. The term is not used by Quain or Macalister.

Apparatus lacrimalis—The lachrymal apparatus.

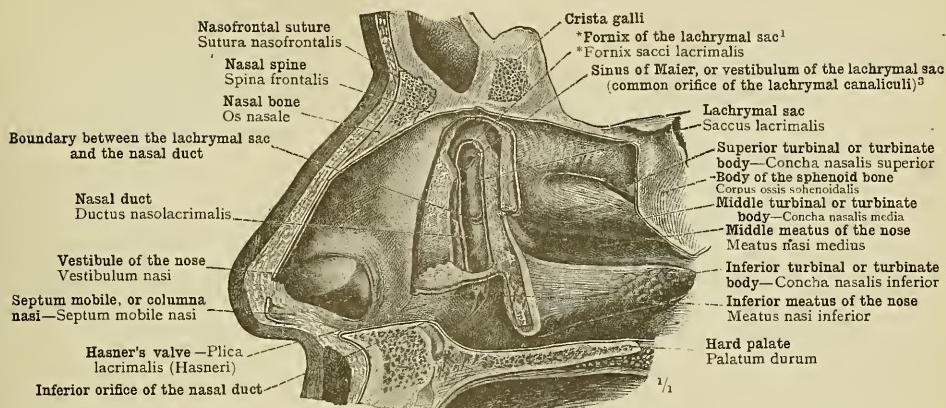


FIG. 1392.—THE LACHRYMAL SAC, SACCUS LACRIMALIS, AND THE NASAL DUCT, DUCTUS NASOLACRIMALIS, OF THE RIGHT SIDE, DISPLAYED FROM THE INTERIOR OF THE NASAL FOSSÆ. THE INFERIOR ORIFICE OF THE NASAL DUCT IN THE INFERIOR MEATUS OF THE NOSE; HASNER'S VALVE, PLICA LACRIMALIS (HASNERI).

In a sagittally hemisectioned head, after the removal of the anterior portions of the middle and inferior turbinatae bodies, as well as the surrounding portions of the nasal mucous membrane (pituitary or Schneidereian membrane), the inner bony wall of the lachrymal groove and the nasal duct was removed as far down as the attachment of the inferior turbinate bone of the nose, so as to expose the lachrymal sac and the nasal duct. These were then both opened by the removal of their inner wall.

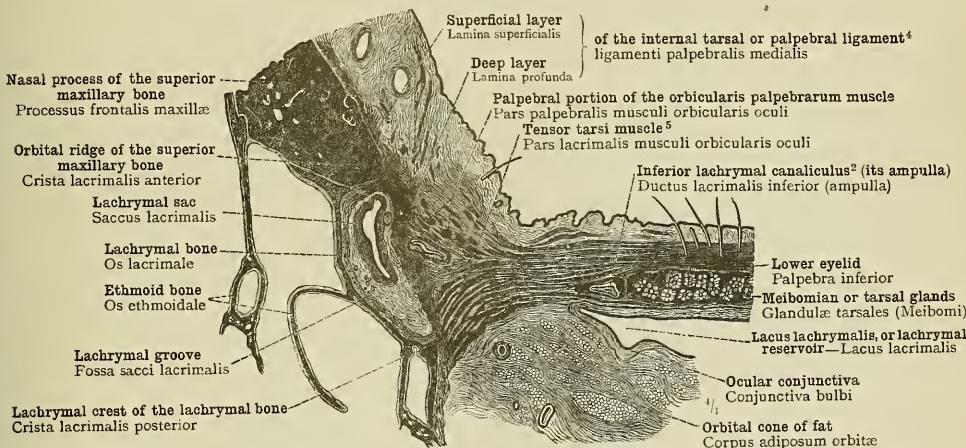


FIG. 1393.—HORIZONTAL SECTION THROUGH THE LACHRYMAL SAC AND THE MARGINAL PORTION OF THE LOWER EYELID. THE INFERIOR LACHRYMAL CANALICULUS (see note² to p. 912) APPEARS TWICE IN THE SECTION, AND THE SUPERIOR LACHRYMAL CANALICULUS IS CUT ACROSS QUITE NEAR TO THE LACHRYMAL SAC.

¹ See note 3 to p. 912.

² See note 2 to p. 912.

³ See Appendix, note 506.

⁴ Known also as the tendon of the orbicularis muscle, or *tendo palpebrarum*.

⁵ Known also as Horner's muscle (*musculus Horneri*), and as the *musculus sacci lacrimalis*. Sometimes also in England called *pars lacrimalis musculi orbicularis palpebrarum*. See Appendix, note 501.

Apparatus lacrimalis—The lachrymal apparatus.

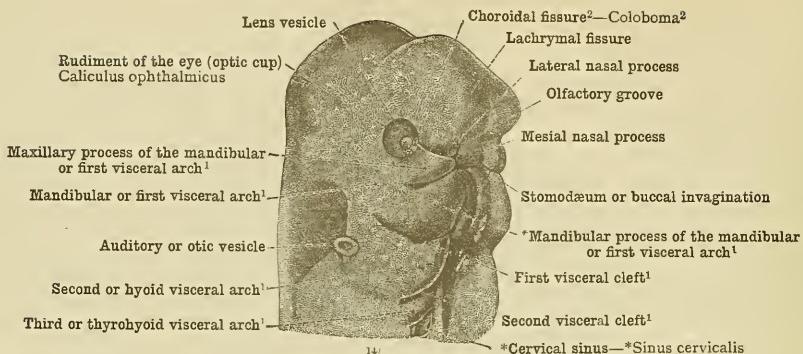


FIG. 1394.—HEAD OF A HUMAN EMBRYO AT OR NEAR THE END OF THE FOURTH WEEK OF INTRA-UTERINE LIFE. SEEN OBLIQUELY FROM BEFORE AND THE RIGHT SIDE.

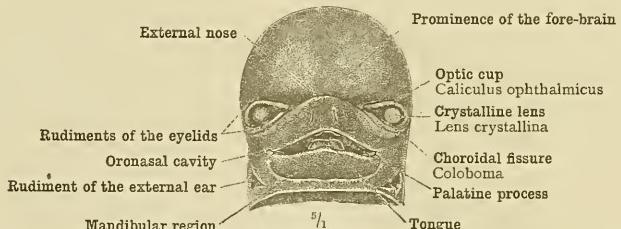


FIG. 1395.—THE HEAD OF A HUMAN EMBRYO AT THE END OF THE SIXTH WEEK OF INTRA-UTERINE LIFE. SEEN FROM BEFORE.

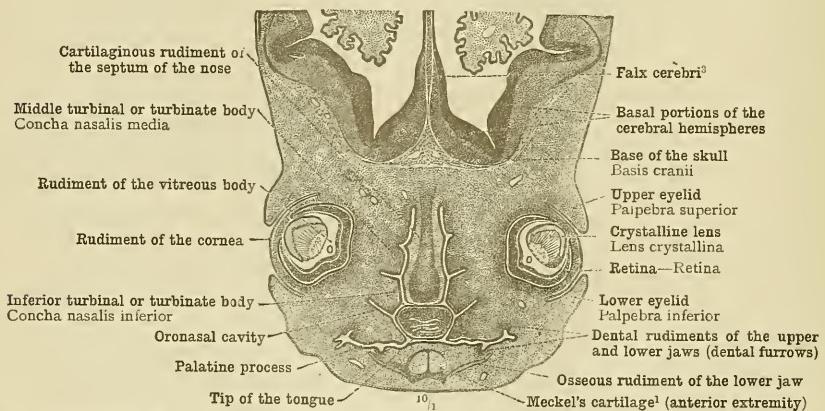


FIG. 1396.—CORONAL SECTION THROUGH THE FACE OF A HUMAN EMBRYO AT THE END OF THE EIGHTH WEEK OF INTRA-UTERINE LIFE.

¹ See Appendix, note 448.

² See Appendix, note 557.

³ Sometimes distinguished as the *faix major*.

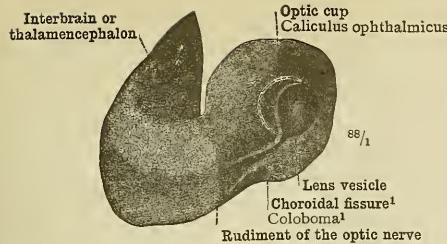


FIG. 1397.—MODEL OF THE OPTIC CUP WITH THE HOLLOW OPTIC STALK, THE LENS VESICLE, AND THE CHOROIDAL FISSURE; FROM A HUMAN EMBRYO OF TWENTY-SEVEN DAYS. (FROM FUCHS AND HOCHSTETTER'S "LEHRBUCH DER AUGENHEILKUNDE.")

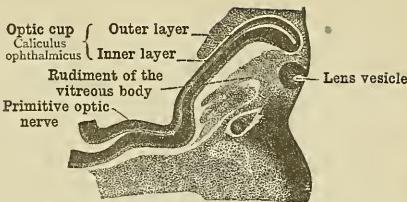


FIG. 1398.—LONGITUDINAL SECTION THROUGH THE OPTIC CUP AND THE RUDIMENT OF THE OPTIC NERVE OF THE EMBRYO DEPICTED IN FIG. 1394. THE SECTION PASSES THROUGH THE CHOROIDAL FISSURE.

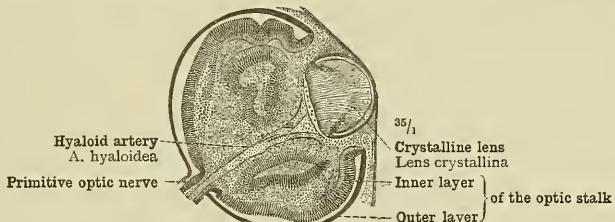


FIG. 1399.—HORIZONTAL SECTION THROUGH THE RIGHT EYE OF THE EMBRYO DEPICTED IN FIG. 1395. THE OPTIC CUP, CALICULUS OPHTHALMICUS, IN A LATER STAGE OF DEVELOPMENT.

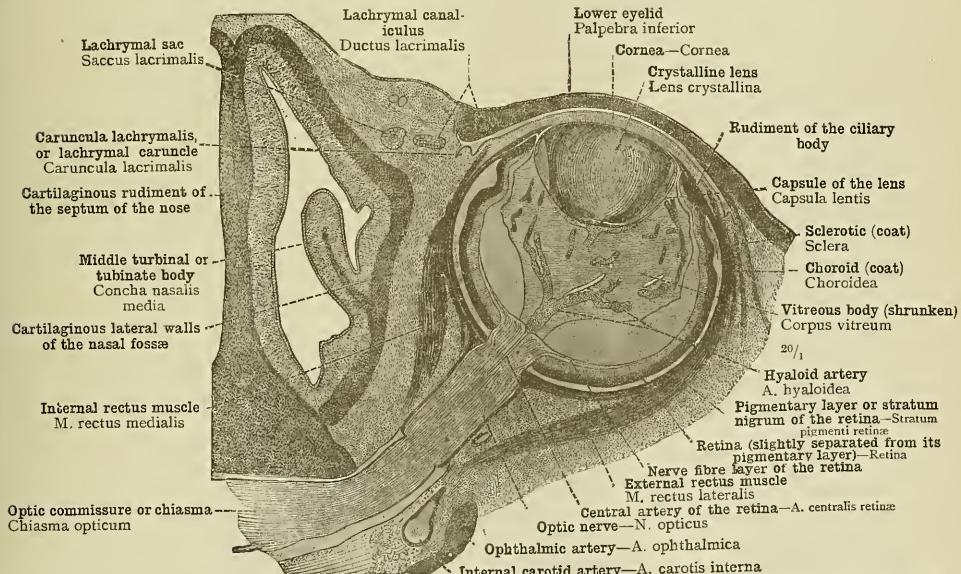


FIG. 1400.—HORIZONTAL SECTION THROUGH THE RIGHT EYE AND A PART OF THE NASAL FOSSA OF A HUMAN EMBRYO OF NINE WEEKS.

¹ See Appendix, note 597.

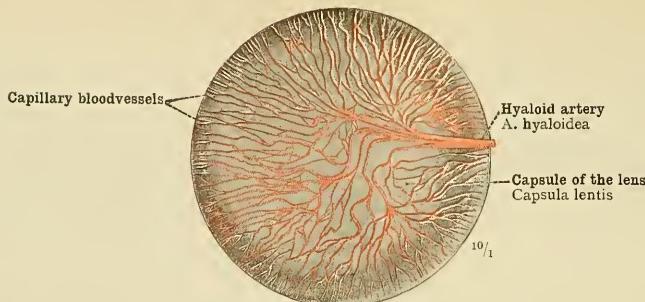


FIG. 1401.—THE RAMIFICATION OF THE HYALOID ARTERY, ARTERIA HYALOIDEA, ON THE POSTERIOR SURFACE OF THE LENS. FROM A HUMAN EMBRYO AT THE END OF THE FOURTH MONTH OF INTRA-UTERINE LIFE (MONTHS OF FOUR WEEKS EACH).

The bloodvessels have been injected.

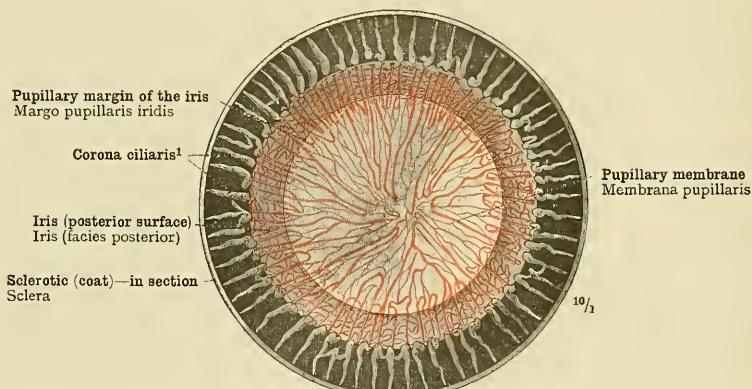


FIG. 1402.—THE BLOODVESSELS OF THE PUPILLARY MEMBRANE, MEMBRANA PUPILLARIS, AND OF THE IRIS. FROM A HUMAN EMBRYO AT THE END OF THE SIXTH MONTH OF INTRA-UTERINE LIFE (MONTHS OF FOUR WEEKS EACH).

The bloodvessels have been injected.

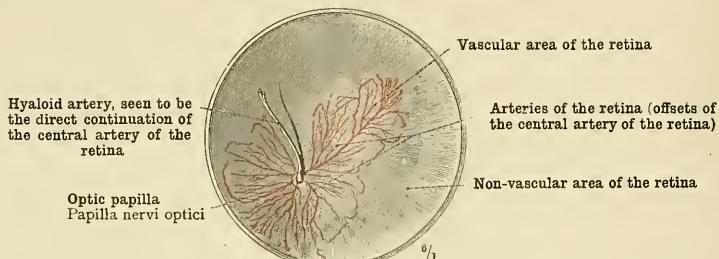
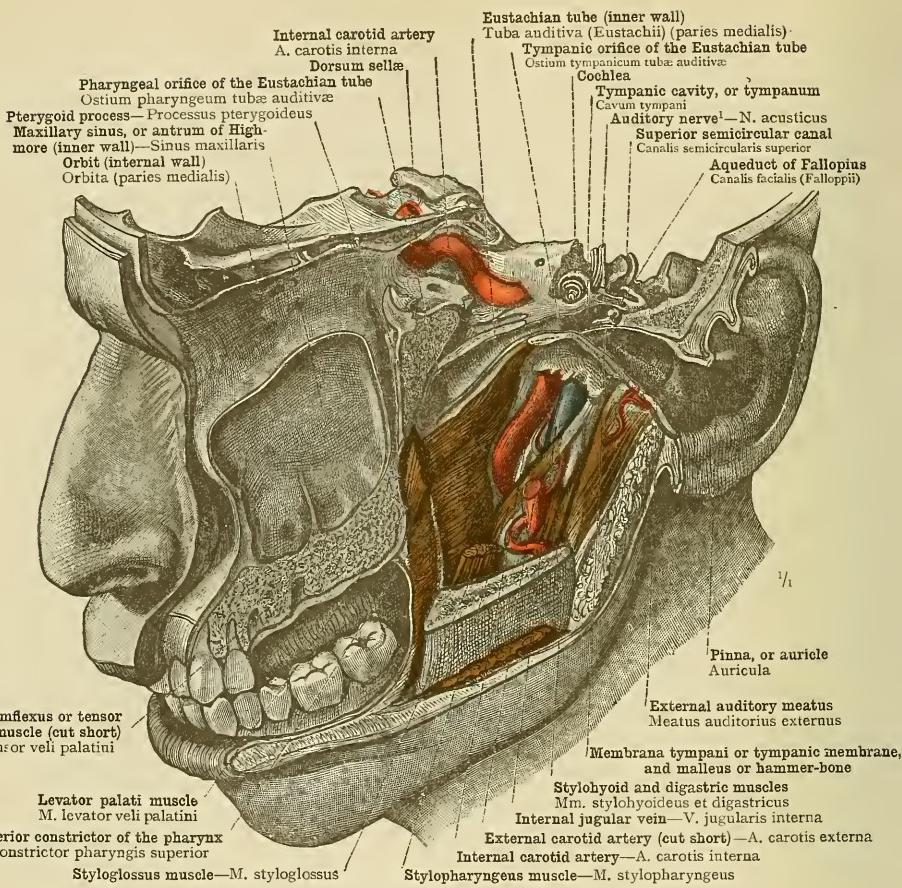


FIG. 1403.—THE OBLITERATED HYALOID ARTERY, ARTERIA HYALOIDEA, PASSING FREELY FORWARDS FROM THE CENTRE OF THE OPTIC PAPILLA, AND DISPLAYED BY THE REMOVAL OF THE VITREOUS BODY. THE VASCULAR SYSTEM OF THE RETINA. POSTERIOR SEGMENT OF THE EYEBALL OF A NEW-BORN KITTEN, SEEN FROM BEFORE.

The bloodvessels have been injected.

¹ See Appendix, note 485.

ORGANON AUDITUS
THE EAR

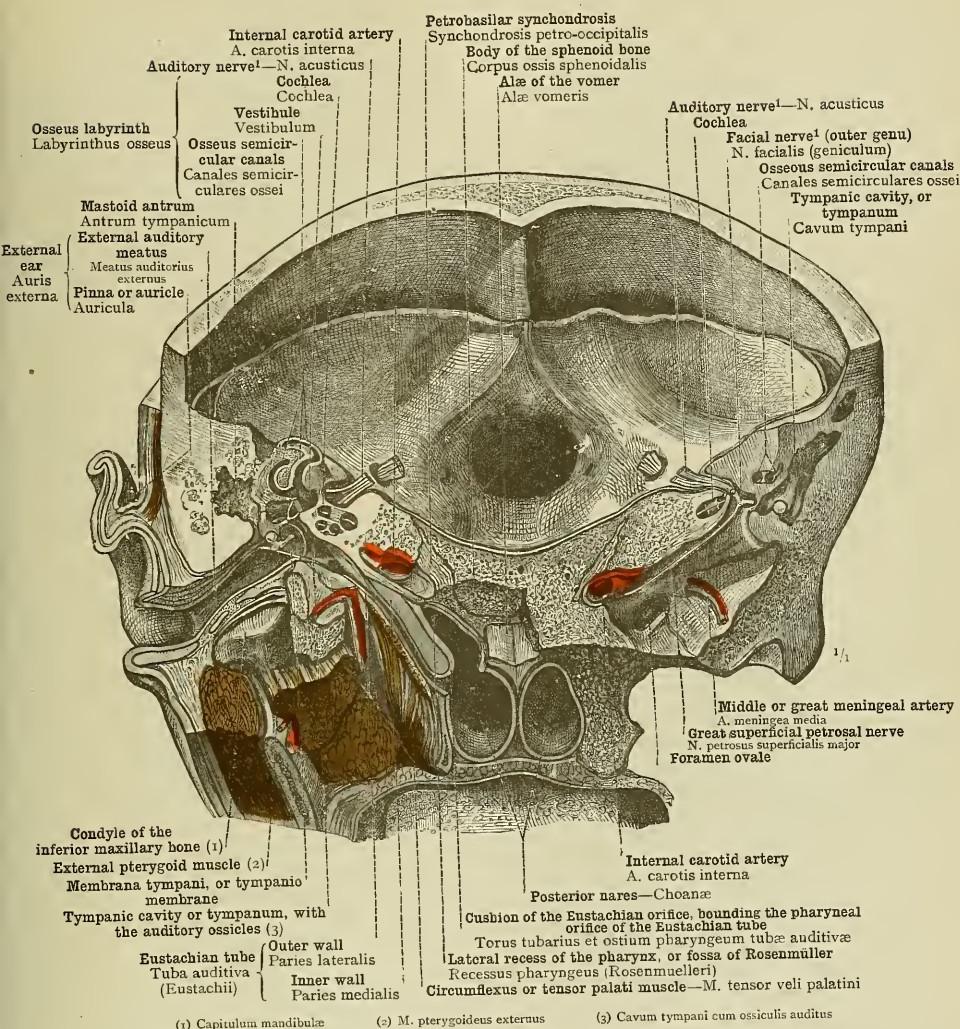


* Eighth cranial nerve in Soemmerring's enumeration: *portio mollis* of the seventh cranial nerve in that of Willis.

FIG. 1404.—GENERAL VIEW OF THE THREE PARTS OF THE ORGAN OF HEARING, SHOWING THEIR RELATIONS. SEEN FROM THE LEFT SIDE AND BEFORE. THE EXTERNAL EAR, AURIS EXTERNA: THE PINNA OR AURICLE, AURICULA, THE EXTERNAL AUDITORY MEATUS, MEATUS AUDITORIUS EXTERNUS, AND THE TYMPANIC MEMBRANE, MEMBRANA TYPANI. THE MIDDLE EAR, AURIS MEDIA: THE TYMPANIC CAVITY OR TYPANUM, CAVUM TYPANI, AND THE EUSTACHIAN TUBE, TUBA AUDITIVA (EUSTACHII). THE INTERNAL EAR, AURIS INTERNA: THE LABYRINTH, LABYRINTHUS (AURIS), AND THE AUDITORY NERVE, NERVUS ACUSTICUS.

In a head hardened in alcohol a sagittal section was first made through the left superior maxillary bone and the left orbit, which behind, passing between the foramen rotundum and the foramen ovale, cut across the root of the great wing of the sphenoid and the internal pterygoid plate. The left ramus of the inferior maxillary bone having been cut away, a second section was made through the external auditory meatus and the tympanum, passing in front of the Eustachian tube and as far as the foramen lacerum medium; the Eustachian tube itself was opened by the removal of its outer wall as far as the pharyngeal orifice of the tube. The parts of the osseous labyrinth were exposed with the chisel.

General View of the Organ of Hearing.



¹ In Soemmering's enumeration the *facial* is the seventh, the *auditory* is the eighth cranial nerve; in that of Willis the former is the *portio dura*, the latter the *portio molle*, of the seventh cranial nerve.

FIG. 1405.—GENERAL VIEW OF THE THREE PARTS OF THE ORGAN OF HEARING. SEEN FROM ABOVE.

In a head hardened in chromic acid and alcohol, after the roof of the skull had been removed in the usual manner, a coronal section was made, passing through the hindmost part of the nasal septum and the foremost part of the soft palate. On the right side, by a saw-cut passing obliquely forwards, the parts of the organ of hearing situated in the petrous portion of the temporal bone were then fully opened, and the upper wall of the cartilaginous portion of the Eustachian tube was removed up to the opening of the tube into the nasopharynx. On the left side of the body the uppermost part of the petrous portion of the temporal bone with the roof of the tympanum was now removed.

General View of the Organ of Hearing.

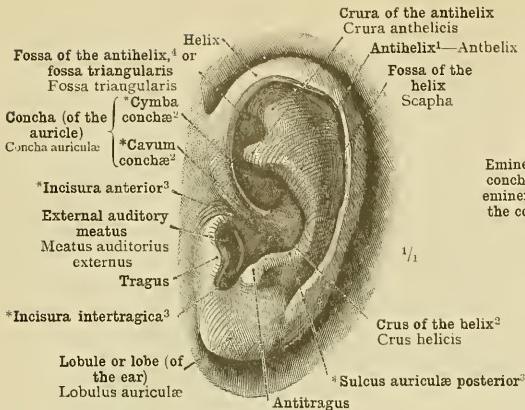


FIG. 1406.—THE LEFT PINNA OR AURICLE, AURICULA, OF A YOUNG WOMAN. OUTER SURFACE. HELIX AND ANTHELIX¹; TRAGUS AND ANTITRAGUS; CONCHA (OF THE AURICLE), CONCHA AURICULÆ; LOBE OR LOBE (OF THE EAR), LOBULUS AURICULÆ.

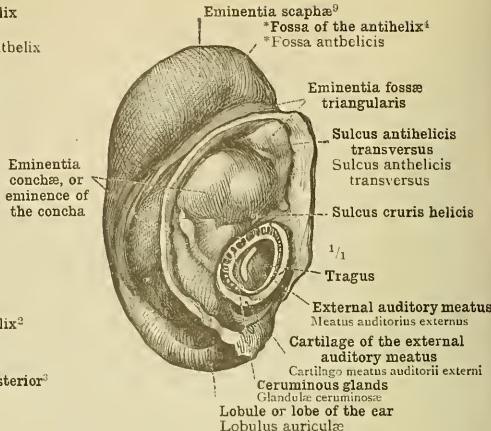


FIG. 1407.—THE INNER SURFACE OF THE SAME AURICLE.

The auricle was separated from the head along its line of attachment to the latter, and the cartilaginous portion of the external auditory meatus was cut across.

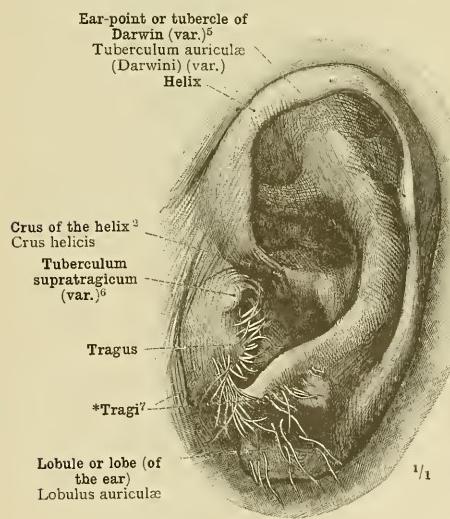


FIG. 1408.—THE LEFT PINNA OR AURICLE OF AN OLD MAN. OUTER SURFACE. *TRAGI⁷; EAR-POINT OR TUBERCLE OF DARWIN, TUBERCULUM AURICULÆ.⁵

¹ The spelling *anthelix* is used sometimes in England also.

² These terms are used neither by Quain nor by Macalister. Their application is indicated by the figure.

³ See Appendix, note 29³.

⁴ Sometimes called *Woolner's tip*, Darwin's attention having been drawn to this prominence by the sculptor Woolner.

⁵ A rounded prominence sometimes met with on the upper part of the tragus.

⁶ The name of "tragi" is given to the short, stiff hairs with which the entrance to the external auditory meatus is sometimes beset in elderly persons. The term is, however, rarely used in England.

⁷ This term is not used by Quain or Macalister. Examination of Fig. 1409 will show its signification.

⁸ The *eminentia scaphæ* is the eminence on the inner surface of the auricle corresponding to the *fossa of the helix* or *scapha* on the outer surface.

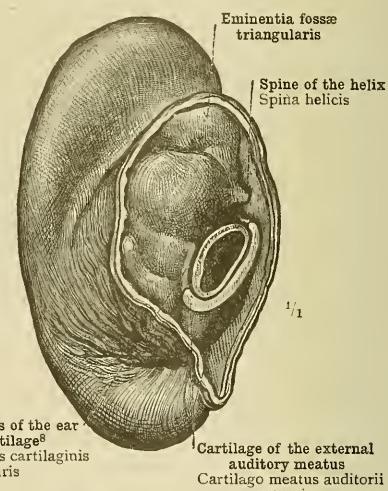


FIG. 1409.—THE INNER SURFACE OF THE SAME AURICLE.

The auricle was separated in the manner described at the foot of Fig. 1407.

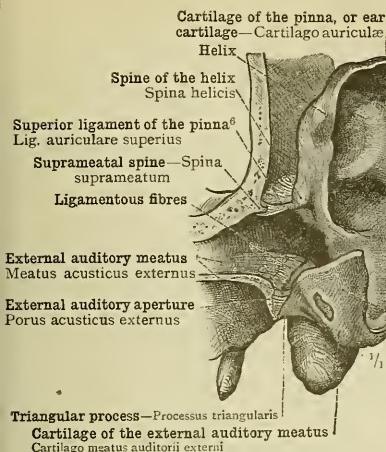


FIG. 1410.—THE CARTILAGE OF THE PINNA, OR EAR CARTILAGE, AND THE CARTILAGE OF THE EXTERNAL AUDITORY MEATUS, IN CONNEXION WITH THE TEMPORAL BONE. LEFT EAR. OUTER SURFACE. SEEN FROM BEFORE.

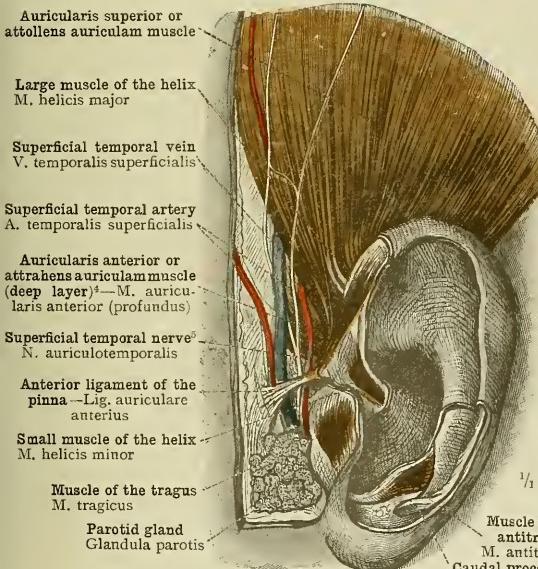


FIG. 1412.—THE MUSCLES (EXTRINSIC AND INTRINSIC) ON THE OUTER SURFACE OF THE PINNA OR AURICLE. LEFT EAR.

¹ See Appendix, note 6⁹.
² By Macalister named *cauda helicis posterior*.
³ See Appendix, note 5¹⁰.
⁴ Quain enumerates *anterior* and *posterior* ligaments only, making no mention of the *superior ligament of the pinna*.
⁵ See note 2 to p. 920.

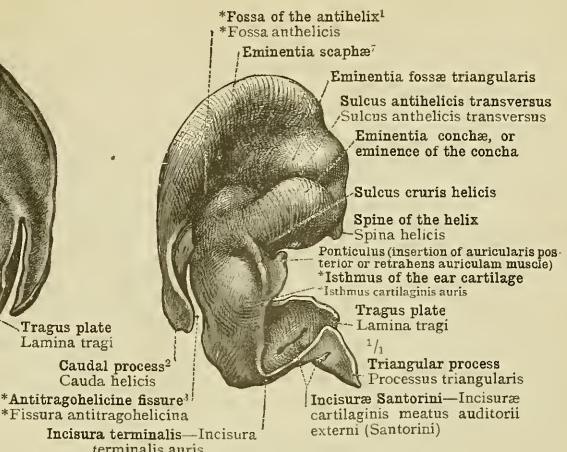


FIG. 1411.—THE CARTILAGE OF THE PINNA, OR EAR CARTILAGE, AND THE CARTILAGE OF THE EXTERNAL AUDITORY MEATUS, CARTILAGO AURICULÆ ET CARTILAGO MEATUS AUDITORII EXTERNI. LEFT EAR. INNER SURFACE. SEEN FROM BEHIND.



FIG. 1413.—THE MUSCLES (EXTRINSIC AND INTRINSIC) ON THE INNER SURFACE OF THE PINNA OR AURICLE. LEFT EAR.

¹ This term is not used by Quain or by Macalister.
² See note 2 to p. 920.

Auris externa—The external ear.—**Auricula**—The pinna or auricle.

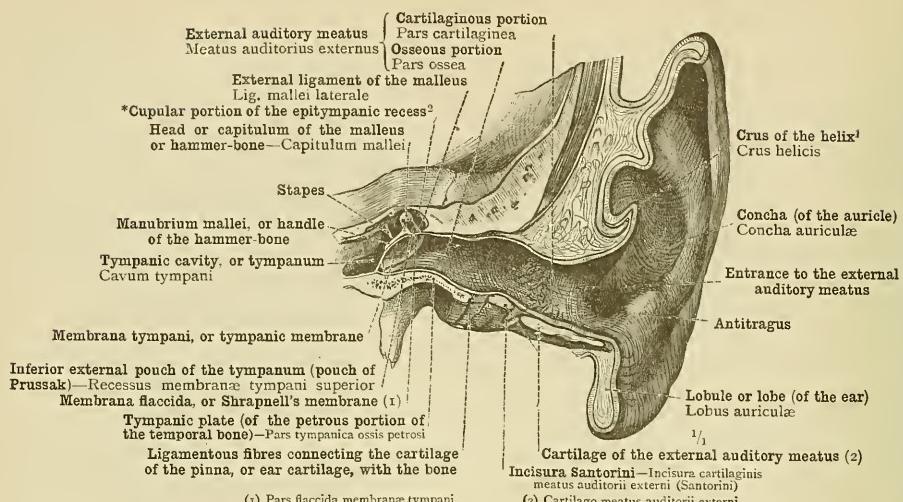


FIG. 1414.—THE LEFT EXTERNAL AUDITORY MEATUS, MEATUS AUDITORIUS EXTERNUS, WITH THE MEMBRANA TYMPANI OR TYPANIC MEMBRANE, CUT PERPENDICULARLY THROUGHOUT ITS WHOLE LENGTH. THE CARTILAGINOUS AND OSSEOUS PORTIONS OF THE EXTERNAL AUDITORY MEATUS, PARS CARTILAGINEA ET PARS OSSSEA MEATUS AUDITORIUS EXTERNI. THE EXPANSION OF THE EXTERNAL AUDITORY MEATUS INTO THE PINNA OR AURICLE, AND ITS CLOSURE BY THE MEMBRANA TYMPANI. SEEN FROM BEFORE.

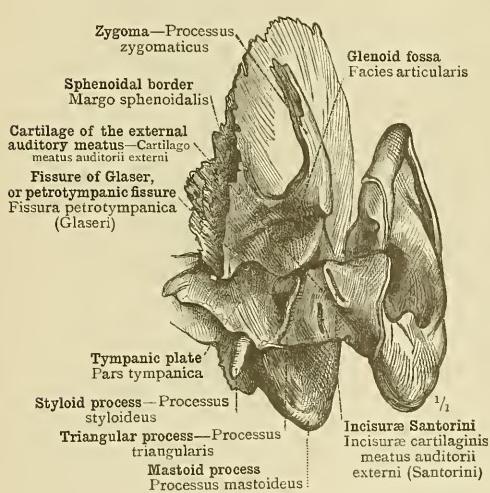


FIG. 1415.—THE WALL OF THE OSSEOUS AND CARTILAGINOUS PORTIONS OF THE EXTERNAL AUDITORY MEATUS LAID BARE. SEEN FROM BELOW AND BEFORE. LEFT EAR.

* See Appendix, note 908.

Auris externa—The external ear.—Meatus auditorius externus—The external auditory meatus.

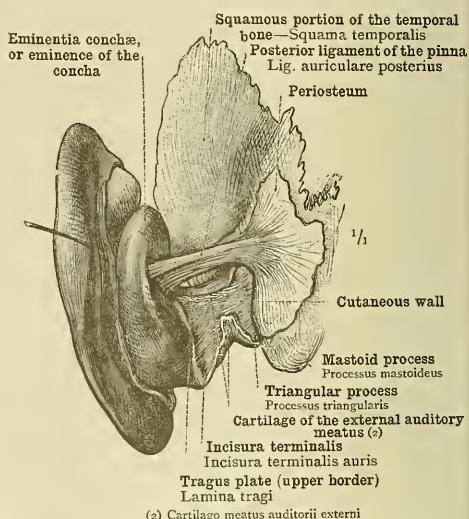


FIG. 1416.—THE WALL OF THE CARTILAGINOUS PORTION OF THE EXTERNAL AUDITORY MEATUS LAID BARE. SEEN FROM BEHIND. LEFT EAR.

* See Appendix, note 514.

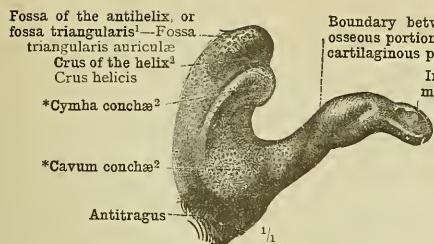


FIG. 1417.—SEEN FROM BEHIND.

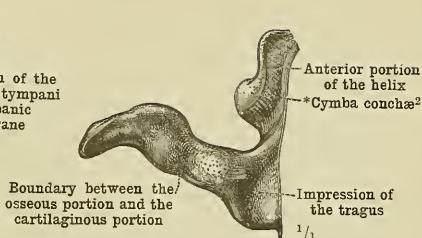


FIG. 1418.—SEEN FROM BEFORE.

CAST OF THE LEFT EXTERNAL AUDITORY MEATUS AND THE ADJOINING PORTIONS OF THE PINNA OR AURICLE, TAKEN WITH FUSIBLE METAL. SHAPE AND DIMENSIONS OF THE EXTERNAL AUDITORY MEATUS.

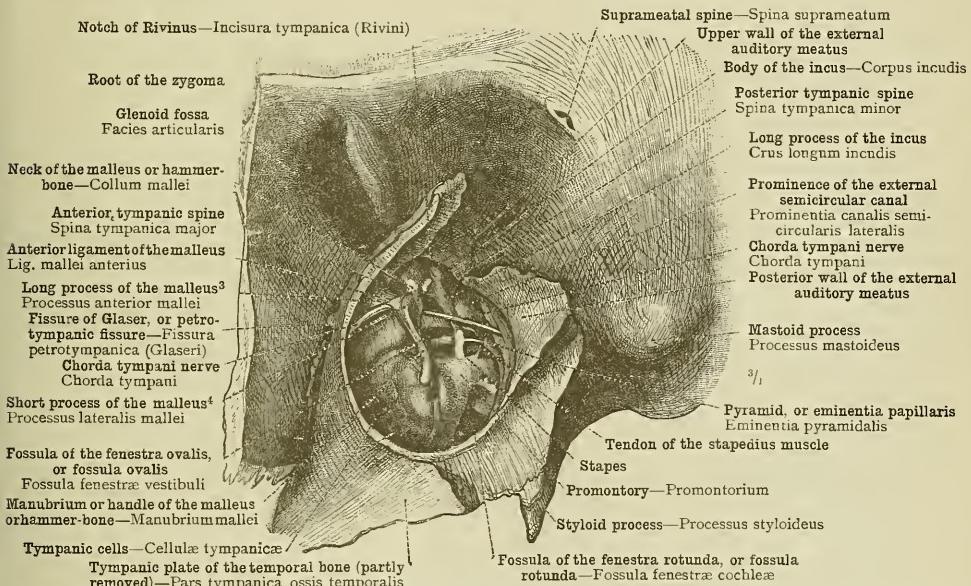


FIG. 1419.—THE INNERMOST PORTION OF THE EXTERNAL AUDITORY MEATUS AND THE RELATION THERETO OF THE STRUCTURES IN THE TYMPANIC CAVITY OR TYMPANUM, DISPLAYED BY THE REMOVAL OF THE GREATER PART OF THE EXTERNAL AUDITORY MEATUS AND OF THE MEMBRANA TYMPANI OR TYMPANIC MEMBRANE. VIEW INTO THE TYMPANIC CAVITY OR TYMPANUM; THE THREE AUDITORY OSSICLES ARE SEEN IN THEIR NATURAL POSITION; THE TENDON OF THE STAPEDIUS MUSCLE AND THE CHORDA TYMPANI NERVE ARE ALSO VISIBLE, AS WELL AS THE PARTS ON THE INNER WALL, PARIES LABYRINTHICUS, OF THE TYMPANIC CAVITY. LEFT EAR.

¹ See Appendix, note 599.² See Appendix, note 598.
4 Also called processus brevis vel obtusus mallei.³ Also called processus gracilis vel folianus mallei.

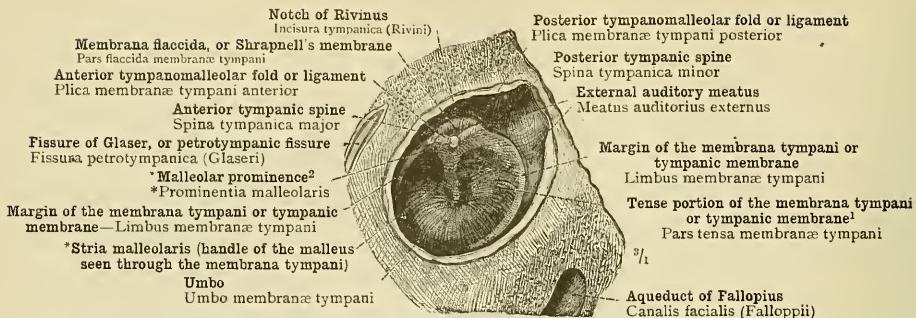


FIG. 1420.—OUTER SURFACE OF THE LEFT MEMBRANA TYMPANI OR TYMPANIC MEMBRANE. The external auditory meatus has been removed by a saw-cut passing close to the tympanic membrane in a plane parallel to the plane of that membrane.

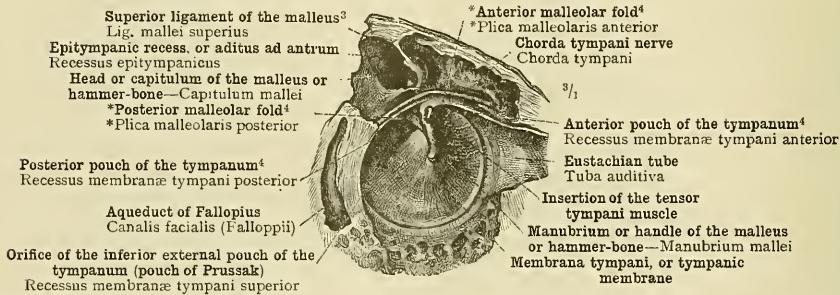


FIG. 1421.—INNER OR TYMPANIC SURFACE OF THE LEFT MEMBRANA TYMPANI OR TYMPANIC MEMBRANE, WITH THE ANTERIOR AND POSTERIOR TYMPANIC POUCHES (OF TRÖLTSCH), RECESSUS MEMBRANÆ TYMPANI ANTERIOR ET POSTERIOR.

Displayed by a saw-cut traversing the tympanum close to the tympanic membrane in a plane parallel to the plane of that membrane, and by the removal of the incus.

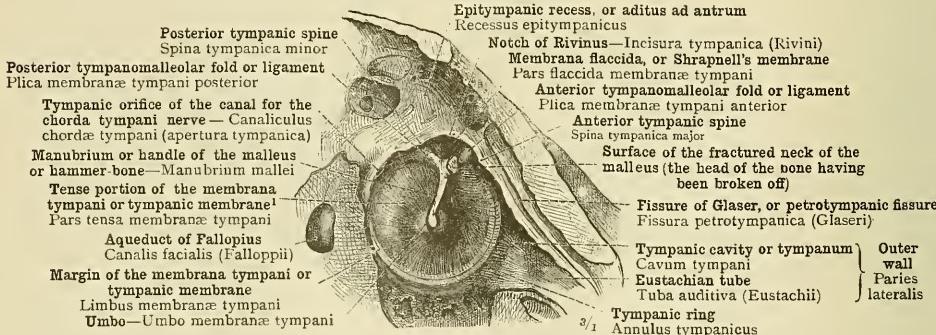


FIG. 1422.—INNER OR TYMPANIC SURFACE OF THE LEFT MEMBRANA TYMPANI OR TYMPANIC MEMBRANE.

In order to lay bare the membrana flaccida (pars flaccida membranæ tympani) the head of the malleus was removed, together with the adjoining folds of the mucous membrane.

¹ See Appendix, note 51c.

² See Appendix, note 51d.

³ Sometimes called the *suspensory ligament of the malleus*.

⁴ See Appendix, note 51e.

Auris externa—The external ear.—Membrana tympani—The tympanic membrane.

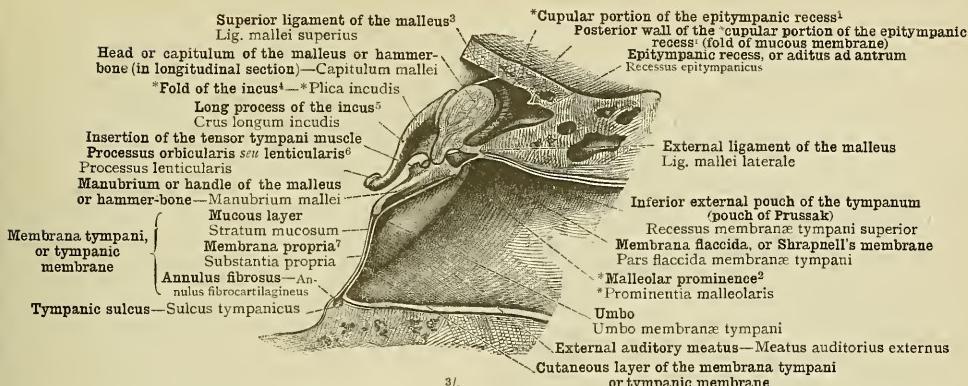


FIG. 1423.—CORONAL SECTION THROUGH THE LEFT MEMBRANA TYPANI OR TYMPLIC MEMBRANE AND THE ADJOINING PORTION OF THE EXTERNAL AUDITORY MEATUS, IN A SPECIMEN FIRST HARDENED IN CHROMIC ACID AND ALCOHOL AND SUBSEQUENTLY DECALCIFIED IN HYDROCHLORIC ACID. THE SECTION PASSES THROUGH THE HEAD OR CAPITULUM OF THE MALLEUS OR HAMMER-BONE, AND LEAVES THE MANUBRIUM OR HANDLE OF THAT BONE INTACT BEHIND THE PLANE OF SECTION. SEEN FROM BEFORE. THE MUCOUS MEMBRANE OF THE RECESSUS EPITYMPANICUS OR ADITUS AD ANTRUM.

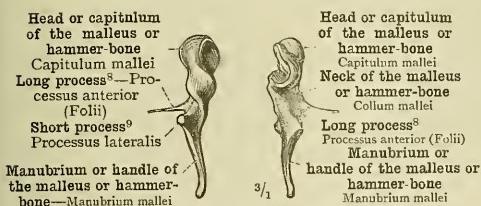
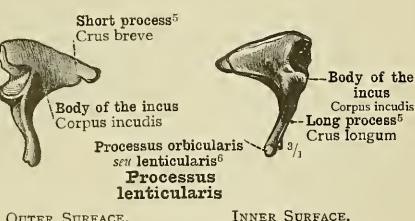


FIG. 1424.—THE LEFT MALLEUS OR HAMMER-BONE.



OUTER SURFACE. INNER SURFACE.

FIG. 1425.—THE LEFT INCUS.



FIG. 1426.—THE LEFT STAPES, WITH THE OBTURATOR MEMBRANE,¹¹ SEEN OBLIQUELY FROM THE UPPER AND INNER SIDE.

¹ See Appendix, note 5¹².

² Sometimes called the *suspensoary ligament of the malleus*.

³ The processes of the incus are often known in England by their Latin names of *crus longum* and *crus breve*.

⁴ See Appendix, note 5¹².

⁵ See Appendix, note 5¹².

⁶ Also known as the *processus gracilis vel foliatus*.

⁷ See Appendix, note 5¹².

⁸ Also known as the *processus brevis vel obtusus*.

⁹ See Appendix, note 5¹².

¹⁰ Sometimes called the *foot-plate of the stapes*.

¹¹ See Appendix, note 5¹².

¹² Sometimes called the *foot-plate of the stapes*.

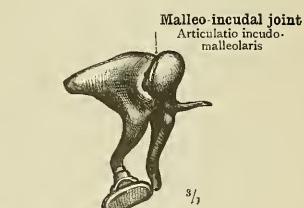


FIG. 1428.—THE AUDITORY OSSICLES OF THE LEFT EAR, SEEN FROM ABOVE IN THEIR NATURAL POSITION.

Auris media—The middle ear.—Ossicula auditus—The auditory ossicles.

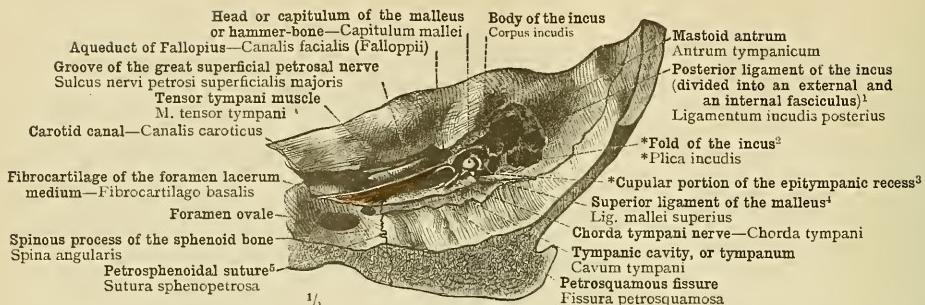


FIG. 1429.—THE LEFT TYMPANIC CAVITY OR TYMPANUM, CAVUM TYPANI, OPENED BY THE REMOVAL OF ITS ROOF,⁵ PARIES TEGMENTALIS. SEEN FROM ABOVE. TENSOR TYPANI MUSCLE.

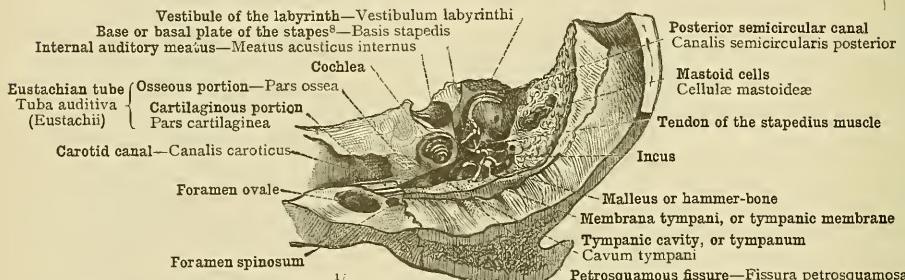


FIG. 1430.—THE LEFT TYMPANUM OR TYMPANIC CAVITY, AND ITS RELATION TO THE LABYRINTH, DISPLAYED BY THE REMOVAL OF THE UPPER PART OF THE PETROUS PORTION OF THE TEMPORAL BONE. SEEN FROM ABOVE.

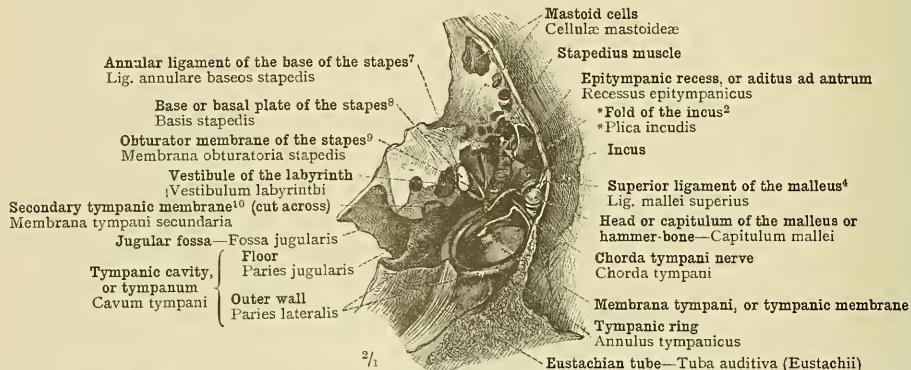


FIG. 1431.—THE LEFT TYMPANUM OR TYMPANIC CAVITY, WITH THE MEMBRANA TYPANI OR TYPANIC MEMBRANE, THE AUDITORY OSSICLES, AND THE STAPEDIUS MUSCLE. SEEN FROM ABOVE.

¹ See Appendix, note 520.

² See Appendix, note 515.

³ See Appendix, note 514.

⁴ See Appendix, note 522.

⁵ Known also as the suspensory ligament of the malleus.

⁵ See Appendix, note 523.

⁶ See Appendix, note 522.

⁷ Also known as the membrane of the fenestra ovalis.

⁷ Also known as the foot-plate of the stapes.

⁹ See Appendix, note 519.

¹⁰ See Appendix, note 523.

Auris media—The middle ear.—Cavum tympani—The tympanic cavity or tympanum.

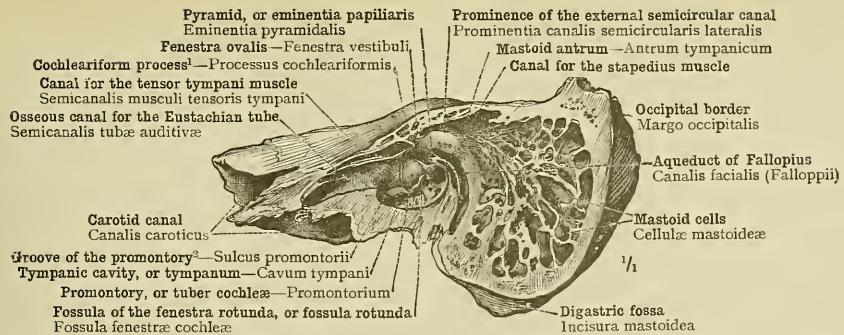


FIG. 1432.—THE INNER WALL, PARIES LABYRINTHICUS, OF THE LEFT TYMPANIC CAVITY (OSSEOUS SURFACE), AND THE MASTOID CELLS, CELLULÆ MASTOIDEÆ, DISPLAYED BY A SECTION PASSING THROUGH THE MASTOID PROCESS AND THE FRONT OF THE PETROUS PORTION OF THE TEMPORAL BONE. SEEN FROM BEFORE AND THE OUTER SIDE

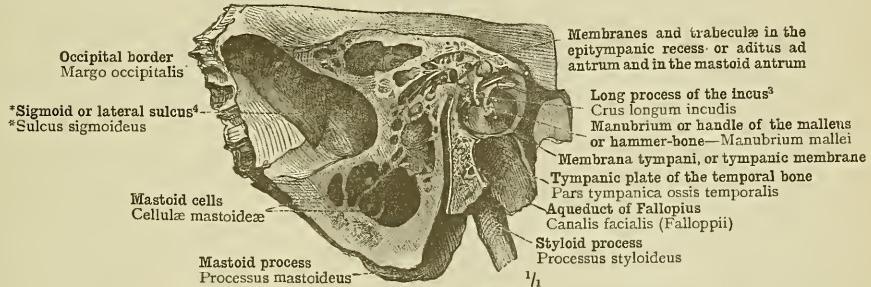


FIG. 1433.—THE OUTER WALL, PARIES MEMBRANACEUS, OF THE LEFT TYMPANIC CAVITY, AND THE ENTRANCE TO THE MASTOID CELLS. THE MASTOID ANTRUM, ANTRUM TYMPANICUM, IS TRAVESED BY BRANCHING TRABECULÆ OF CONNECTIVE TISSUE. SEEN FROM THE INNER SIDE.

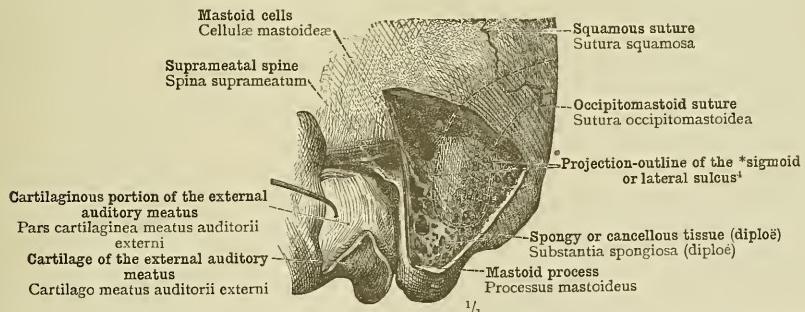


FIG. 1434.—THE MASTOID CELLS IN RELATION TO THE EXTERNAL AUDITORY MEATUS AND TO THE *SIGMOID OR LATERAL SINUS.³ THE PROJECTION-OUTLINE OF THE SINUS IS INDICATED BY AN INTERRUPTED LINE. LEFT EAR. SEEN FROM THE OUTER SIDE.

The mastoid cells are in this specimen but slightly developed.

¹ See Appendix, note 524.

² See Appendix, note 525.

³ Often known in England also by the Latin name of *crus longum incudis*.

⁴ Regarding the use of the term “sigmoid sulcus,” lodging the “sigmoid sinus,” see note 264 to Part V. In Part I, the usual English name of *lateral sulcus* only was employed (see Fig. 129, p. 63).

Auris media—The middle ear.—Cellulæ mastoideæ—The mastoid cells.

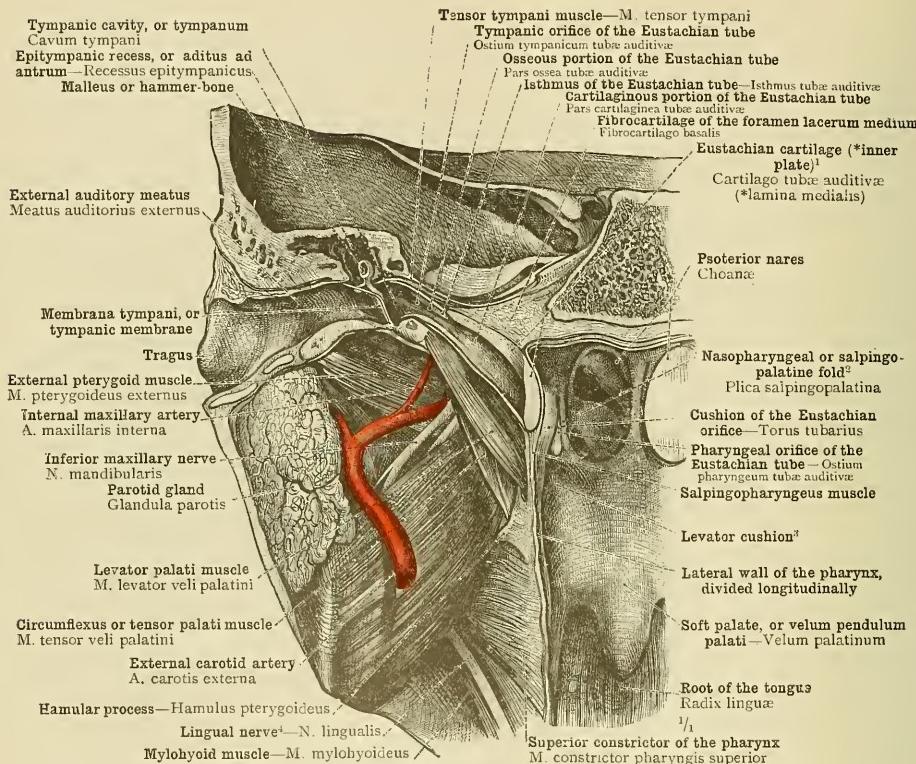
¹ See Appendix, note 526.² See Appendix to Part IV., note 4.³ See Appendix, note 527.⁴ Formerly known also as the *gustatory nerve*.

FIG. 1435.—THE EUSTACHIAN TUBE, TUBA AUDITIVA (EUSTACHII), WITH THE TYMPANIC CAVITY OR TYMPANUM AND THE EXTERNAL AUDITORY MEATUS, SEEN FROM BEHIND.

in the anterior segment of a head divided in the direction of the external auditory meatus, the left Eustachian tube was exposed from behind up to the lateral wall of the pharynx, and was opened by the removal of its inner wall. Of the *inner plate (see Appendix, note 526) of the Eustachian cartilage, the uppermost portion only, divided longitudinally, and the foremost portion, which is imbedded in the wall of the pharynx and thus forms the cushion of the Eustachian orifice, torus tubarius, have been preserved. The levator palati muscle, musculus levator veli palatini, the circumflexus, or tensor palati muscle, musculus tensor veli palatini, the superior constrictor of the pharynx, musculus constrictor pharyngis superior, the external and internal pterygoid muscles, musculi pterygoidei, externus and internus, the arteries and nerves passing between the last-named muscles, and the posterior surface of the parotid gland, were then exposed. Finally, the pharynx was opened by the removal of its posterior wall, so that its left lateral wall is seen in longitudinal section, and the cushion of the Eustachian orifice and the pharyngeal orifice of the Eustachian tube, situate just in front of this eminence, are also visible.

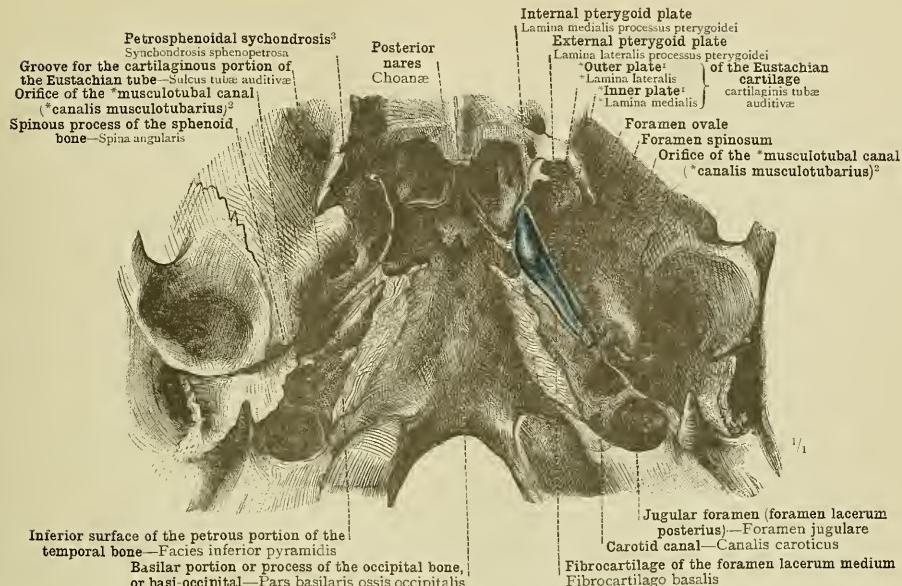


FIG. 1436.—A PART OF THE OUTER OR INFERIOR SURFACE OF THE BASE OF THE SKULL, ON THE LEFT SIDE OF WHICH THE EUSTACHIAN CARTILAGE, CARTILAGO TUBÆ AUDITIVÆ, IS EXPOSED IN ITS NATURAL POSITION AND WITH ITS NATURAL CONNEXIONS WITH THE BONES. ON THE RIGHT SIDE THE GROOVE FOR THE CARTILAGINOUS PORTION OF THE EUSTACHIAN TUBE, SULCUS TUBÆ AUDITIVÆ, IS LAID BARE.

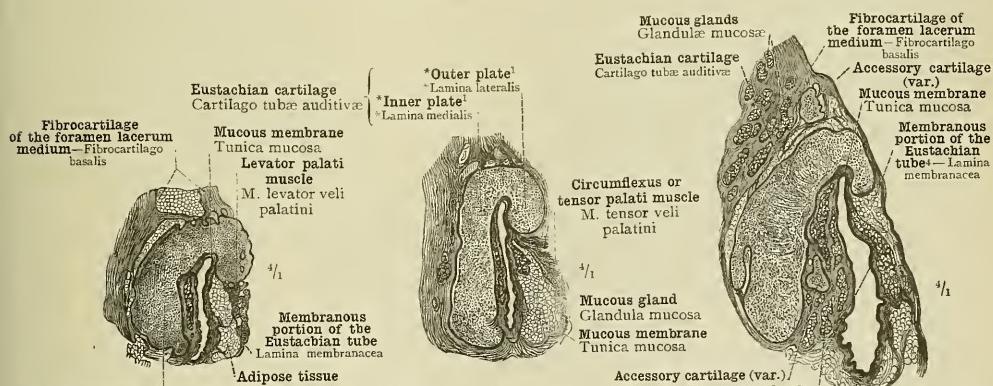


FIG. 1437.—NEAR THE OSSEOUS PORTION.

FIG. 1438.—MIDDLE OF THE CARTILAGINOUS PORTION.

FIG. 1439.—NEAR THE PHARYNGEAL ORIFICE.

TRANSVERSE SECTIONS OF THE CARTILAGINOUS PORTION OF THE EUSTACHIAN TUBE, PARS CARTILAGINEA TUBÆ AUDITIVÆ.

¹ See Appendix, note 526.

² See Appendix, note 528.

³ See Appendix, note 521.

⁴ See Appendix, note 526.

Auris media—The middle ear.—Tuba auditiva—The Eustachian tube.

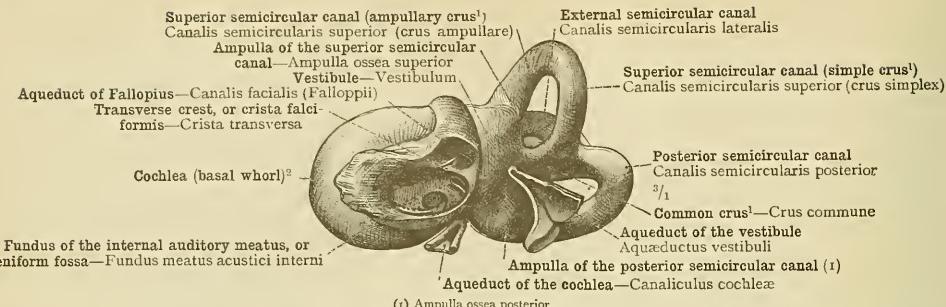


FIG. 1440.—THE OSSEOUS LABYRINTH, LABYRINTHUS OSSEUS, OF THE RIGHT EAR, WITH THE INTERNAL AUDITORY MEATUS, SEEN FROM BEHIND. THE AQUEDUCT OF THE VESTIBULE, AQUEDUCTUS VESTIBULI, AND THE AQUEDUCT OF THE COCHLEA, CANALICULUS COCHLEÆ.

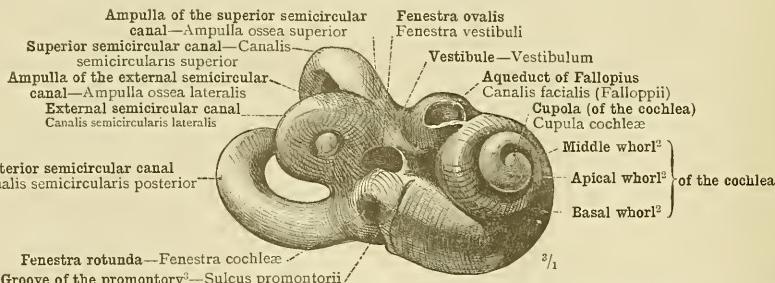


FIG. 1441.—THE OSSEOUS LABYRINTH OF THE RIGHT EAR, SEEN FROM BEFORE. THE FENESTRA OVALIS (FENESTRA VESTIBULI) AND THE FENESTRA ROTUNDA (FENESTRA COCHLEÆ); THE PART OF THE AQUEDUCT OF FALLOPIUS (CANALIS FACIALIS FALLOPII) ADJACENT TO THE COCHLEA.

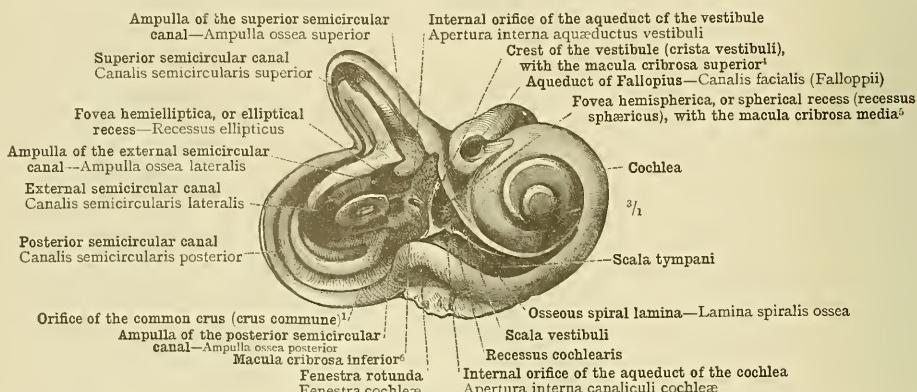


FIG. 1442.—THE OSSEOUS LABYRINTH OF THE RIGHT EAR, SEEN FROM BEFORE. THE OUTER WALL OF THE VESTIBULE HAS BEEN REMOVED, AND THE SEMICIRCULAR CANALS HAVE BEEN OPENED THROUGHOUT THEIR ENTIRE LENGTH. INNER SURFACE OF THE INNER AND POSTERIOR WALLS OF THE VESTIBULE, AND THE ORIFICES OF THE SEMICIRCULAR CANALS.

¹ See Appendix, note 579.

² See Appendix, note 539.

³ See Appendix, note 539.

⁴ See Appendix, note 539.

⁵ See Appendix, note 525.

⁶ See Appendix, note 533.

Auris interna—The internal ear.—Labyrinthus osseus—The osseous labyrinth.

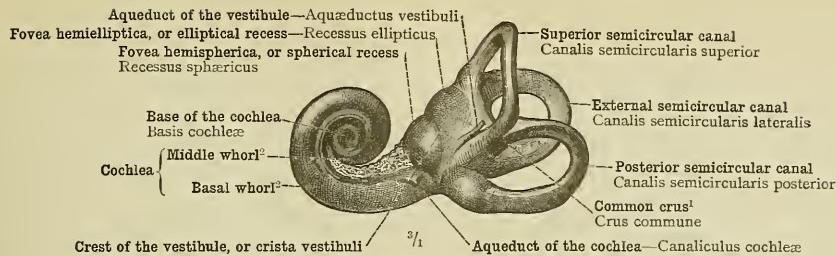


FIG. 143.—CAST OF THE INTERIOR OF THE RIGHT OSSEOUS LABYRINTH, TAKEN WITH FUSIBLE METAL. SEEN FROM BEHIND.

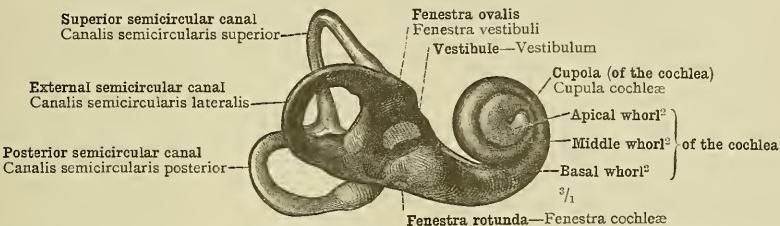


FIG. 144.—CAST OF THE INTERIOR OF THE RIGHT OSSEOUS LABYRINTH, TAKEN WITH FUSIBLE METAL. SEEN FROM BEFORE.

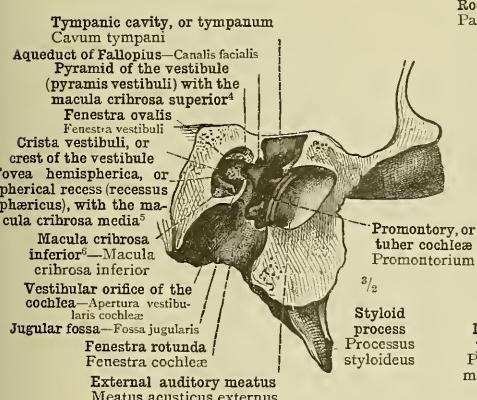


FIG. 145.—ANTERIOR SEGMENT OF THE TEMPORAL BONE, WITH THE ANTERIOR PORTION OF THE VESTIBULE. THE MACULÆ CRIBROSÆ (see Appendix, notes 531, 532, and 533); THE VESTIBULAR ORIFICE OF THE COCHLEA.

A right temporal bone was divided by a frontal saw-cut, which cut transversely across the promontory or tuber cochlea, the fenestra ovalis, and the vestibule of the labyrinth. The bone was thus divided into anterior and posterior segments.

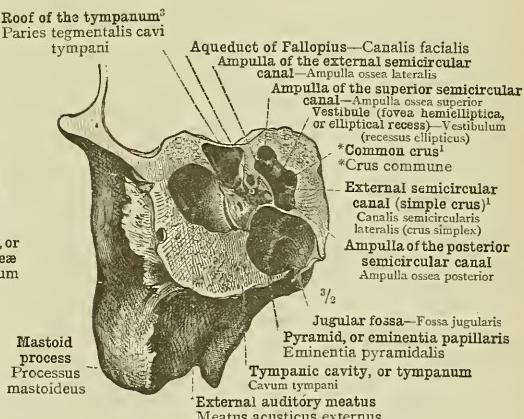


FIG. 146.—POSTERIOR SEGMENT OF THE TEMPORAL BONE, WITH THE POSTERIOR PORTION OF THE VESTIBULE. THE ORIFICES OF THE SEMICIRCULAR CANALS.

¹ See Appendix, note 532.
² See Appendix, note 531.

³ See Appendix, note 532.
⁴ See Appendix, note 531.

⁵ See Appendix, note 532.
⁶ See Appendix, note 533.

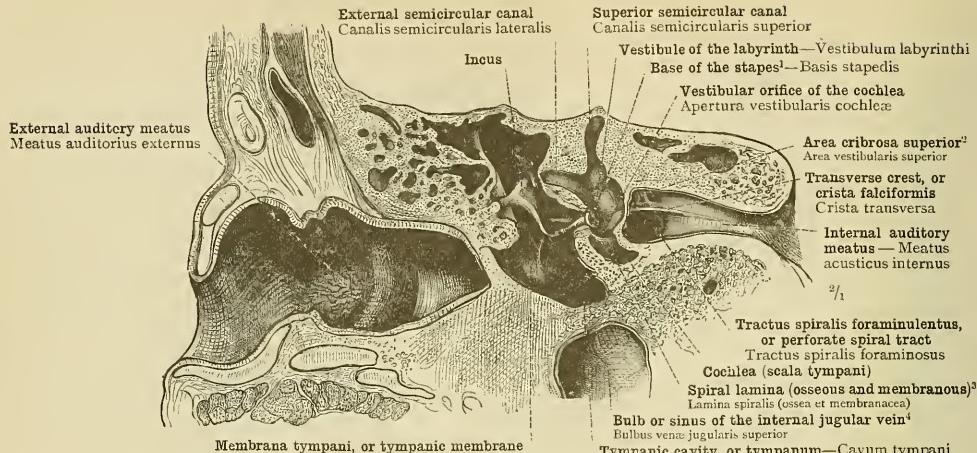


FIG. 1447.—THE VESTIBULE OF THE LABYRINTH, SHOWN IN RELATION TO THE TYMPANIC CAVITY OR TYMPANUM AND TO THE FUNDUS OF THE INTERNAL AUDITORY MEATUS OR RENIFORM FOSSA.

A section, nearly coronal in direction, was made through the left organ of hearing, dividing the external and the internal auditory meatus in the direction of the long axis of these canals. The anterior segment seen from behind.

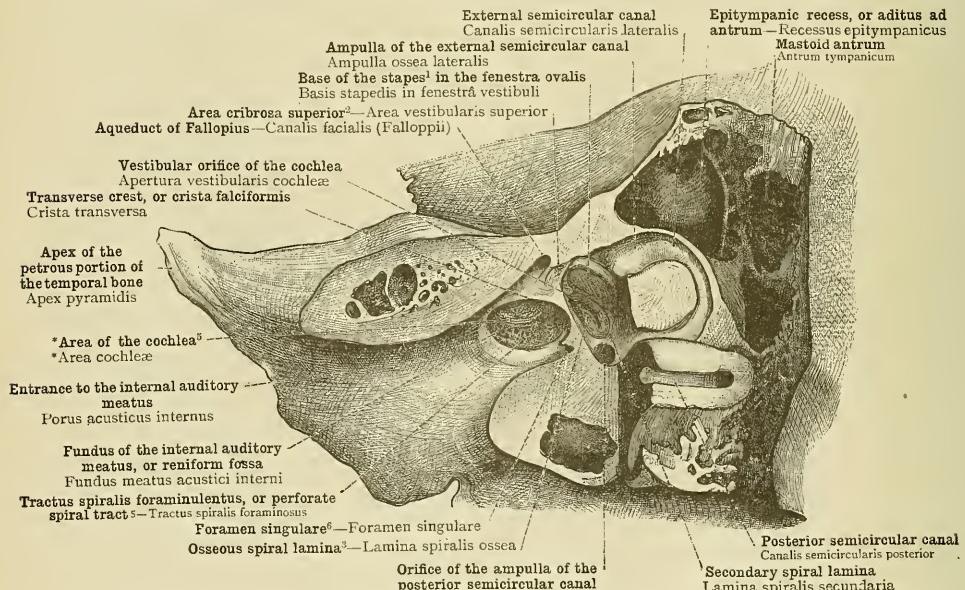


FIG. 1448.—THE VESTIBULE OF THE LABYRINTH WITH THE EXTERNAL SEMICIRCULAR CANAL, THE UPPER LIMB (*CRUS SIMPLEX—see Appendix, note 523) OF THE POSTERIOR SEMICIRCULAR CANAL, AND THE INTERNAL AUDITORY MEATUS, EXPOSED FROM ABOVE IN THE PETROUS PORTION OF THE RIGHT TEMPORAL BONE. SEEN OBLIQUELY FROM ABOVE AND BEHIND.

¹ Also called the basal plate, or foot-plate, of the stapes.

² See Appendix, note 524.

³ The Latin names, *lamina spiralis ossea* and *lamina spiralis membranacea*, are also quite commonly used in England.

⁴ See Appendix to Part V., note 521.

⁵ See Appendix, note 524.

⁶ See Appendix, note 523.

Auris interna—The internal ear.—Labyrinthus osseus—The osseous labyrinth.

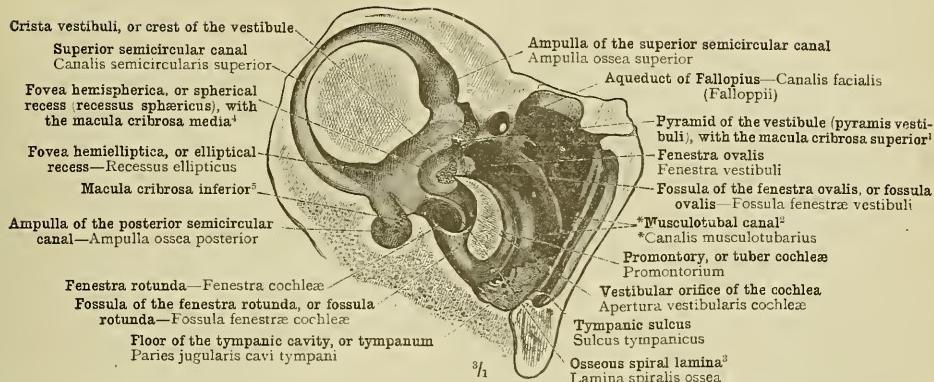


FIG. 1449.—THE ANTERIOR PORTION OF THE VESTIBULE WITH THE SUPERIOR SEMICIRCULAR CANAL. IN THE VESTIBULE WE SEE THE MACULE CIBROSÆ (see Appendix, notes 531, 532, and 533) AND THE VESTIBULAR ORIFICE OF THE COCHLEA.

The petrous portion of a right temporal bone was sawn across in a plane nearly perpendicular to its long axis in such a manner that the section cut the tympanum transversely and passed through the fenestra ovalis and the whole length of the superior semicircular canal. The inner segment of the petrous portion of the temporal bone is viewed from the outer side.

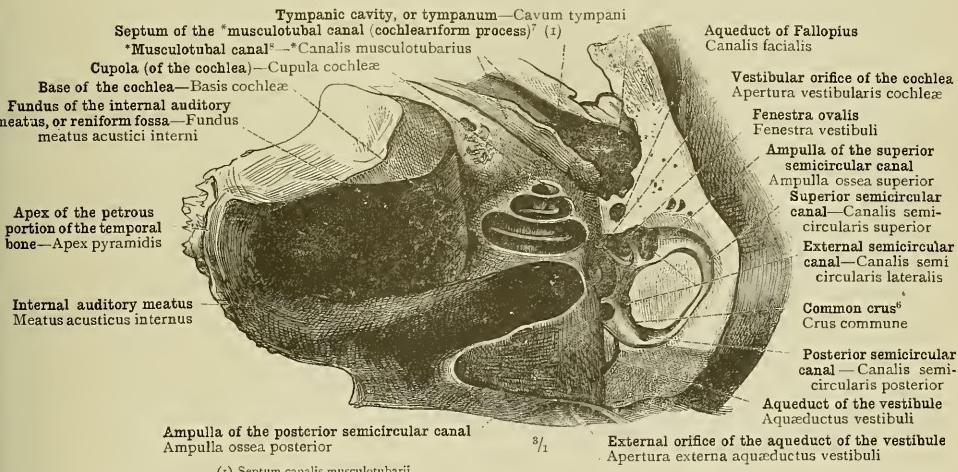


FIG. 1450.—THE RELATION OF THE VESTIBULE TO THE COCHLEA AND OF THIS LATTER TO THE FUNDUS OF THE INTERNAL AUDITORY MEATUS OR RENIFORM FOSSA AND TO THE *MUSCULOTUBAL CANAL (i.e., THE CANAL FOR THE TENSOR TYMPANI MUSCLE AND THE OSSEOUS CANAL FOR THE EUSTACHIAN TUBE—see Appendix, note 528), *CANALIS MUSCULOTUBARIUS, DISPLAYED FROM ABOVE IN A RIGHT TEMPORAL BONE.

The superior semicircular canal is opened throughout its whole length, and a portion of the aqueduct of the vestibule, aqueductus vestibuli, is also exposed.

¹ See Appendix, note 531.
⁵ See Appendix, note 533.

² See Appendix, note 528.
⁶ See Appendix, note 529.

³ See note 3 to p. 932.

⁷ See Appendix, notes 524 and 528.

⁴ See Appendix, note 532.

⁸ See Appendix, note 528.

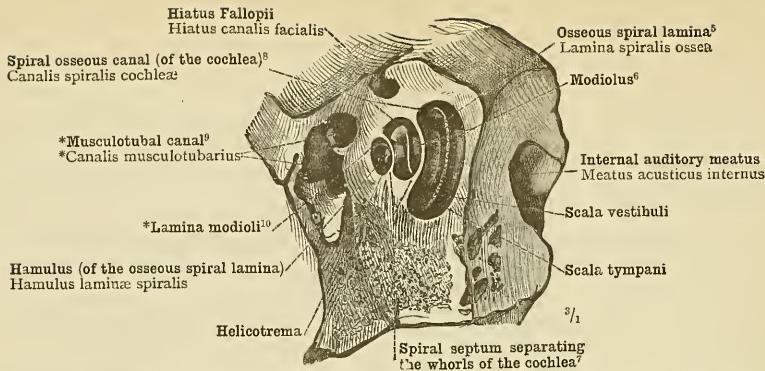


FIG. 1451.—THE (OSSEOUS) COCHLEA, DIVIDED IN A PLANE PARALLEL TO ITS LONG AXIS. ITS RELATION TO THE *MUSCULOTUBULAR CANAL (i.e., THE CANAL FOR THE TENSOR TYMPANI MUSCLE AND THE OSSEOUS CANAL FOR THE EUSTACHIAN TUBE—see Appendix, note ⁵²⁸), *CANALIS MUSCULOTUBARIUS. INNER SURFACE OF THE OUTER SEGMENT.

Displayed by a saw-cut in a plane perpendicular to the long axis of the petrous portion of the right temporal bone.

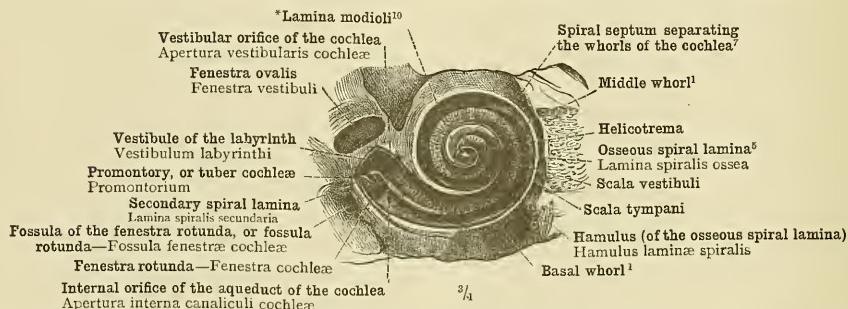


FIG. 1452.—THE (OSSEOUS) COCHLEA OF THE RIGHT EAR, DISPLAYED FROM BEFORE BY THE REMOVAL OF THE CAROTID CANAL, CANALIS CAROTICUS, AND OF THE *MUSCULOTUBULAR CANAL (i.e., THE CANAL FOR THE TENSOR TYMPANI MUSCLE AND THE OSSEOUS CANAL FOR THE EUSTACHIAN TUBE—see Appendix, note ⁵²⁸), *CANALIS MUSCULOTUBARIUS. THE WHORLS OF THE COCHLEA (see Appendix, note ⁵³⁰), OPENED BY THE REMOVAL OF THE OUTER WALL OF THAT ORGAN, ARE VIEWED FROM THE DIRECTION OF THE APEX OF THE COCHLEA —THAT IS, FROM ABOVE AND THE OUTER SIDE.

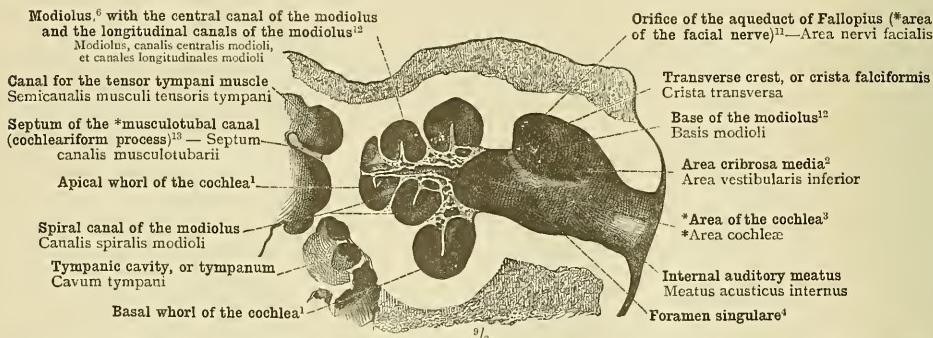


FIG. 1453.—AXIAL SECTION THROUGH THE (OSSEOUS) COCHLEA OF THE RIGHT EAR. THE MODIOLUS⁶ IS DIVIDED THROUGHOUT ITS WHOLE LENGTH.

¹ See Appendix, note 530.

² See note 3 to p. 932.

³ See Appendix, note 535.

⁴ See Appendix, note 533.

² See Appendix, note 532.

⁶ The modiolus, the central pillar or axis of the cochlea, is also known as the *columna cochlearis*.

⁸ See Appendix, note 536.

¹² See Appendix, note 539.

³ See Appendix, note 534.

⁹ See Appendix, note 528.

¹³ See Appendix, note 540.

⁴ See Appendix, note 533.

¹⁰ See Appendix, note 537.

Auris interna—The internal ear.—Labyrinthus osseus—The osseous labyrinth.

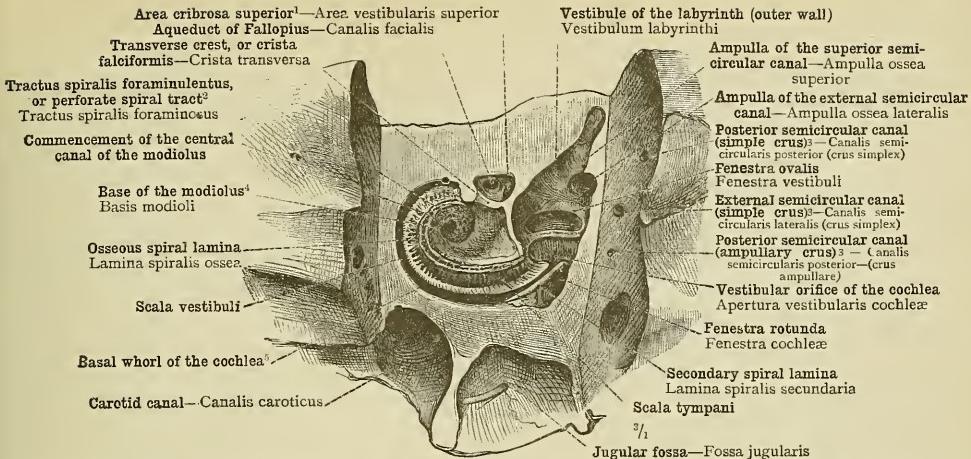


FIG. 1454.—THE BASAL WHORL OF THE COCHLEA (see Appendix, note 530) WITH THE BASE OF THE MODIOLUS, BASIS MODIOLI (see Appendix, note 530), SEEN FROM BEHIND. THE OSSEOUS SPIRAL LAMINA, LAMINA SPIRALIS OSSEA, BY MEANS OF WHICH THE SCALA VESTIBULI IS [IN PART] SEPARATED FROM THE SCALA TYPANMI, IS SEEN FROM THE BASAL SIDE OF THE COCHLEA [THAT IS, FROM BELOW, ACCORDING TO THE CONVENTIONAL DESCRIPTION OF THE COCHLEA—see Appendix, note 540]. THE OPENING OF THE SCALA VESTIBULI INTO THE VESTIBULE (VESTIBULAR ORIFICE OF THE COCHLEA, APERTURA VESTIBULARIS COCHLEÆ), AND THE OPENING OF THE SCALA TYPANMI INTO THE TYPANUM OR TYPANIC CAVITY BY MEANS OF THE FENESTRA ROTUNDA (CLOSED IN THE RECENT STATE BY THE SECONDARY TYPANIC MEMBRANE OR MEMBRANE OF THE FENESTRA ROTUNDA—see Appendix, note 522). DISPLAYED FROM BEHIND IN THE PETROUS PORTION OF THE RIGHT TEMPORAL BONE.

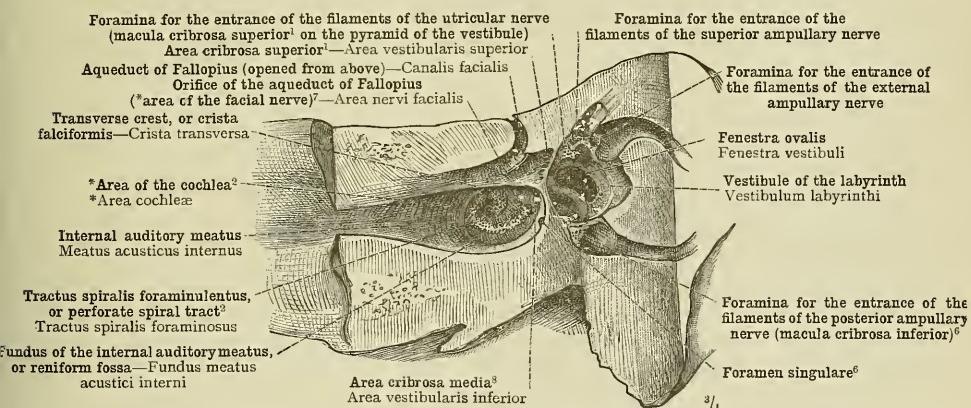


FIG. 1455.—THE INTERNAL AUDITORY MEATUS, MEATUS ACUSTICUS INTERNUS, OPENED FROM BEHIND IN THE PETROUS PORTION OF THE RIGHT TEMPORAL BONE. IN THE FUNDUS OF THE INTERNAL AUDITORY MEATUS, OR RENIFORM FOSSA, WE SEE THE TRACTUS SPIRALIS FORAMINULATUS, OR PERFORATE SPIRAL TRACT (TRACTUS SPIRALIS FORAMINOSUS, ACCORDING TO TOLDT³), AND THE ORIFICES OF THE NERVE CANALICULI LEADING INTO THE MODIOLUS AND THE OSSEOUS SPIRAL LAMINA, AND ALSO THE ORIFICES OF THE NERVE CANALICULI LEADING TO THE MACULÆ CRIBROSÆ OF THE VESTIBULE AND TO THE AMPULLÆ OF THE SEMICIRCULAR CANALS (see Appendix, notes 531, 532, 533, and 537). IN THE VESTIBULE, LIKEWISE OPENED FROM BEHIND, WE SEE THE MACULÆ CRIBROSÆ, SUPERIOR ET INFERIOR, AND THE FORAMINA FOR THE ENTRANCE OF THE FILAMENTA OF THE SUPERIOR AND EXTERNAL AMPULLARY NERVES.

¹ See Appendix, note 531.

² See Appendix, note 534.

³ See Appendix, note 533.

⁴ See Appendix, note 532.

⁵ See Appendix, note 530.

⁶ See Appendix, note 533.

⁷ See Appendix, note 534.

² See Appendix, note 534.

⁵ See Appendix, note 530.

⁶ See Appendix, note 533.

⁷ See Appendix, note 532.

⁸ See Appendix, note 534.

⁹ See Appendix, note 534.

Auris interna—The internal ear.—*Labyrinthus osseus*—The osseous labyrinth.

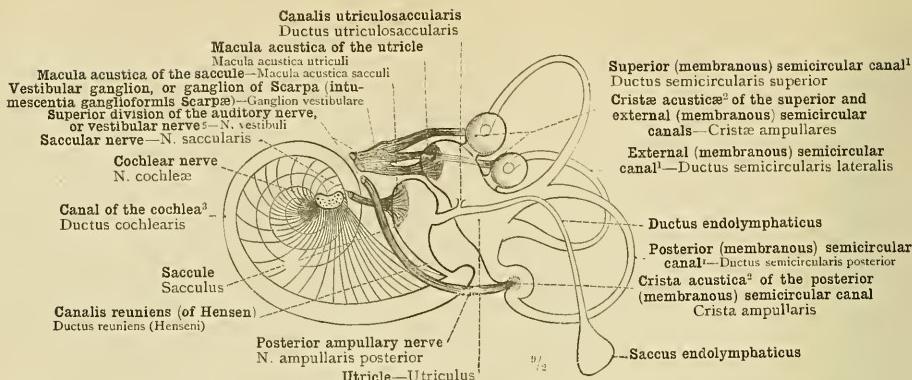


FIG. 1456.—DIAGRAMMATIC REPRESENTATION OF THE RIGHT MEMBRANOUS LABYRINTH AND THE DISTRIBUTION OF THE RIGHT AUDITORY NERVE, NERVUS ACUSTICUS. SEEN FROM BEHIND.

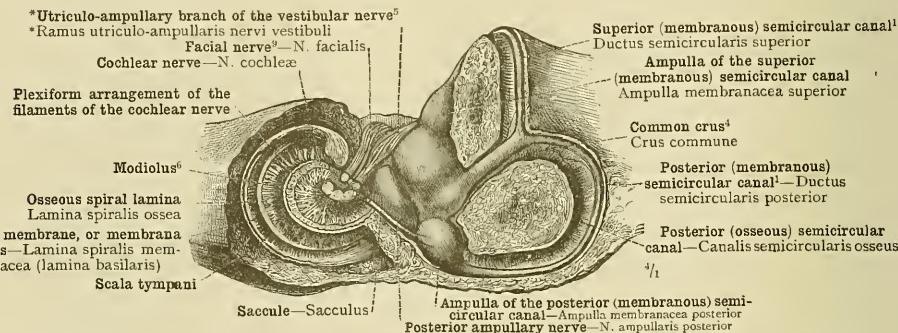


FIG. 1457.—THE MEMBRANOUS LABYRINTH OF A NEW-BORN INFANT, DISPLAYED BY THE PARTIAL REMOVAL OF THE OSSEOUS LABYRINTH. RIGHT EAR. SEEN FROM BEHIND.

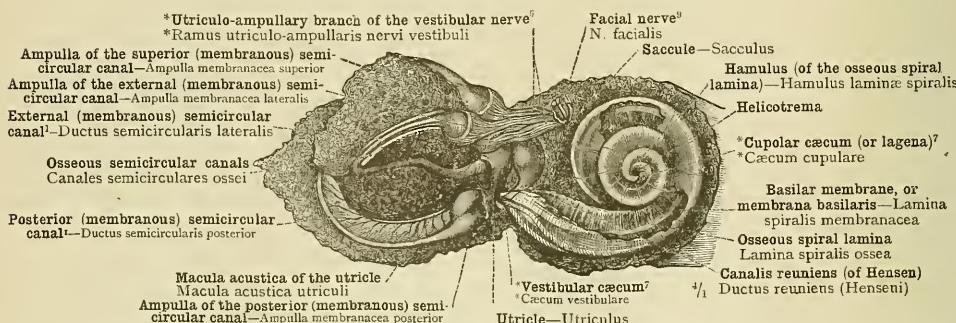


FIG. 1458.—THE MEMBRANOUS LABYRINTH OF A NEW-BORN INFANT, SEEN FROM BEFORE. RIGHT EAR. THE WALL OF THE CAVITY OF THE COCHLEA (see Appendix, note ⁵⁴⁶) IS FORMED BY THE PERIOSTEAL INVESTMENT OF THE SPIRAL OSSEOUS CANAL OF THE COCHLEA (see Appendix, note ⁵⁴⁶) AND BY THE SPIKAL LIGAMENTUM SPIRALE.

¹ See Appendix, note ⁵⁴⁶.

² See Appendix, note ⁵⁴³.

³ Or, more briefly, the *cochlear canal*. Also known in England by the Latin names *canalis (membranaceus) cochleæ* and *ductus cochlearis*. It was formerly known as the *scala media*. See also Appendix, note ⁵³⁷.

⁴ See Appendix, note ⁵³⁹.

⁵ See Appendix, note ⁵⁴⁴.

⁶ See Appendix, note ⁵⁴⁶.

⁷ See note ¹¹ to p. 937.

⁶ See note ⁶ to p. 934.

⁷ See Appendix, note ⁵⁴⁵.

Auris interna—The internal ear.—*Labyrinthus membranaceus*—The membranous labyrinth.

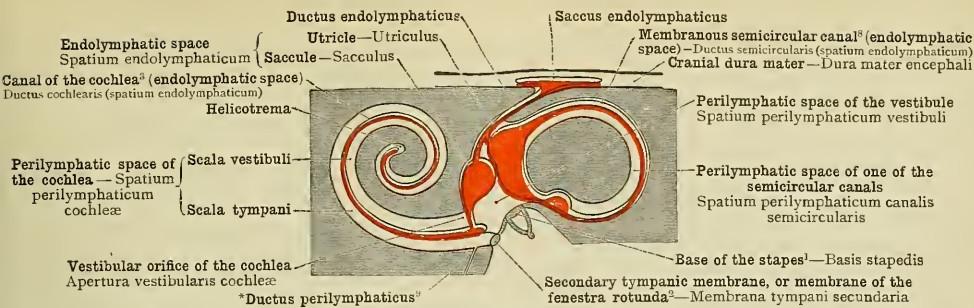


FIG. 1459.—DIAGRAM OF THE ENDOLYMPHATIC AND PERILYMPHATIC SPACES OF THE LABYRINTH (THE FORMER RED, THE LATTER WHITE).

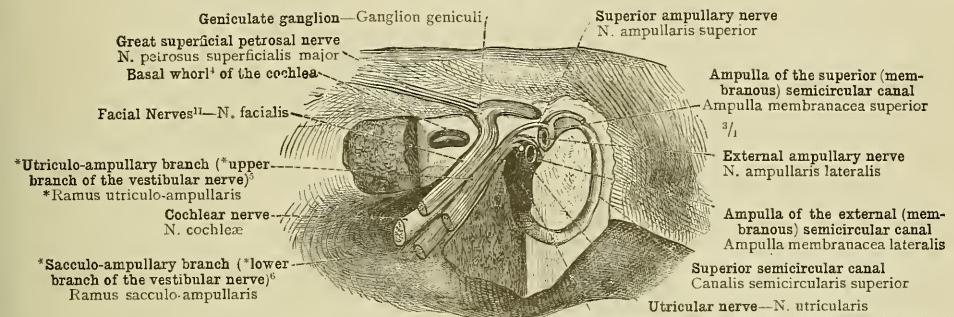


FIG. 1460.—THE FACIAL NERVE AND THE *UPPER OR *UTRICULO-AMPULLARY BRANCH, *RAMUS UTRICULO-AMPILLARIS, OF THE *VESTIBULAR NERVE, *NERVUS VESTIBULARIS, DISPLAYED FROM ABOVE BY THE OPENING OF THE INTERNAL AUDITORY MEATUS.

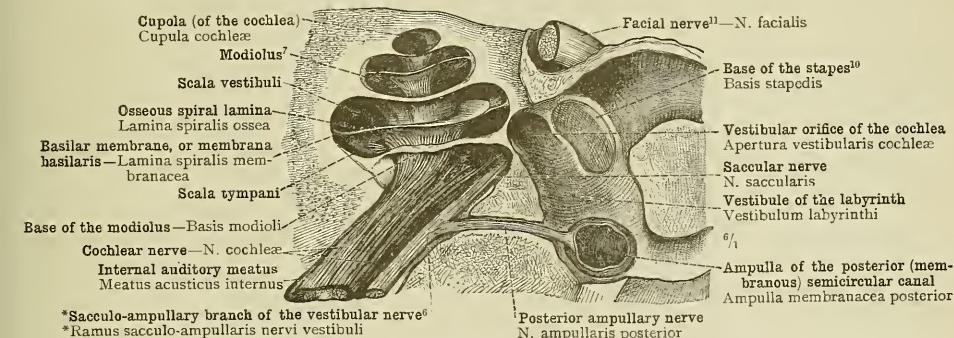


FIG. 1461.—THE COCHLEAR NERVE AND THE *LOWER OR *SACCULO-AMPULLARY BRANCH, RAMUS *SACCULO-AMPILLARIS,⁶ OF THE *VESTIBULAR NERVE, *NERVUS VESTIBULARIS, DISPLAYED IN THE PREPARATION ALREADY DEPICTED IN FIG. 1460 BY THE REMOVAL OF THE FACIAL NERVE AND THE *UPPER BRANCH OF THE *VESTIBULAR NERVE.⁵

¹ Known also as the basal plate or foot-plate of the stapes.

² See Appendix, note 523.

³ Or, more briefly, the cochlear canal. Also known in England by the Latin names *canalis (membranaceus) cochlea* and *ductus cochleæ*. It was formerly known as the *scala media*. See Appendix, note 539.

⁴ See Appendix, note 524.

⁵ This "ampillary branch," or so-called "upper branch of the vestibular nerve, is itself the entire vestibular nerve in Quain's terminology. See Appendix, note 544.

⁶ This "sacculo-ampillary branch" represents the *posterior branch of the inferior division of the auditory nerve* in Quain's terminology. See Appendix, note 544.

⁷ Also known as the *columnella cochleæ*.

⁸ See Appendix, note 542.

⁹ See Appendix, note 547.

¹⁰ Also known as the *foot-plate*, or *basal plate*, of the stapes.

¹¹ In Semmerring's enumeration the *facial* is the *seventh*, the *auditory* the *eighth cranial nerve*; in that of Willis the former is the *portio dura*, the latter the *portio molle*, of the *seventh cranial nerve*.

Auris interna—The internal ear.—N. acusticus—The auditory nerve (see note ¹¹ above).

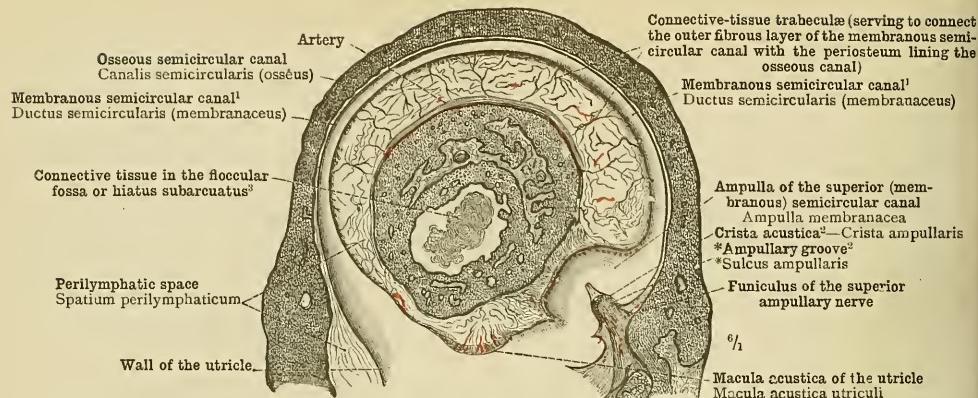


FIG. 1462.—LONGITUDINAL SECTION THROUGH THE SUPERIOR (OSSEOUS AND MEMBRANOUS) SEMICIRCULAR CANAL; THE CRISTA ACUSTICA, CRISTA AMPULLARIS (see Appendix, note 543), WITH THE NERVE TERMINAL, IS SEEN IN TRANSVERSE SECTION.

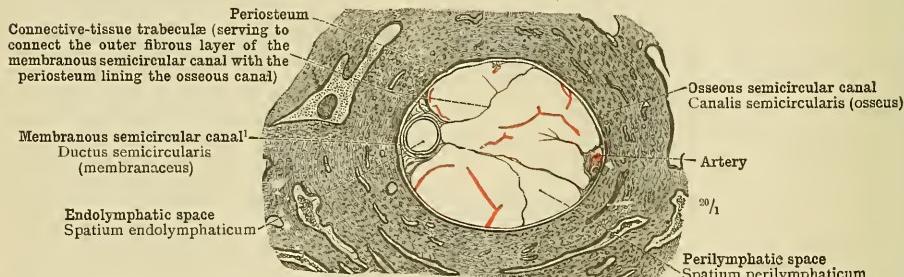


FIG. 1463.—TRANSVERSE SECTION THROUGH THE SIMPLE CRUS OF THE SUPERIOR (OSSEOUS AND MEMBRANOUS) SEMICIRCULAR CANAL.

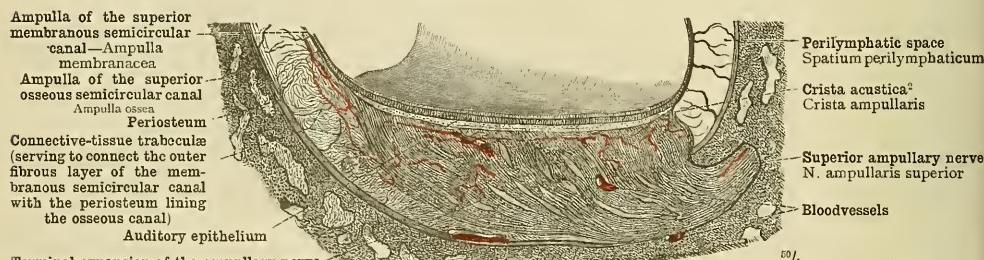


FIG. 1464.—SECTION THROUGH THE AMPULLA OF THE SUPERIOR SEMICIRCULAR CANAL ALONG THE CRISTA ACUSTICA (see Appendix, note 543); THE NERVE TERMINAL AND THE NERVE FILAMENT PASSING TO THE CREST ARE DIVIDED LONGITUDINALLY.

ALL THREE SPECIMENS FIGURED ON THIS PAGE WERE PREPARED FROM THE DECALCIFIED PETROUS BONE OF A NEW-BORN INFANT.

¹ See Appendix, note 542.

² See Appendix, note 543.

³ By Toldi called *fossa subarcuata*—see Fig. 129, p. 63, and Fig. 144, p. 70, in Part I. It receives its name because, in the infantile state of the bone (here figured), the fossa passes beneath the arch of the superior semicircular canal. In the adult this deep pit is replaced by a small foramen occupied by a strand of connective tissue.

Auris interna—The internal ear.—Termination of the Auditory Nerve.

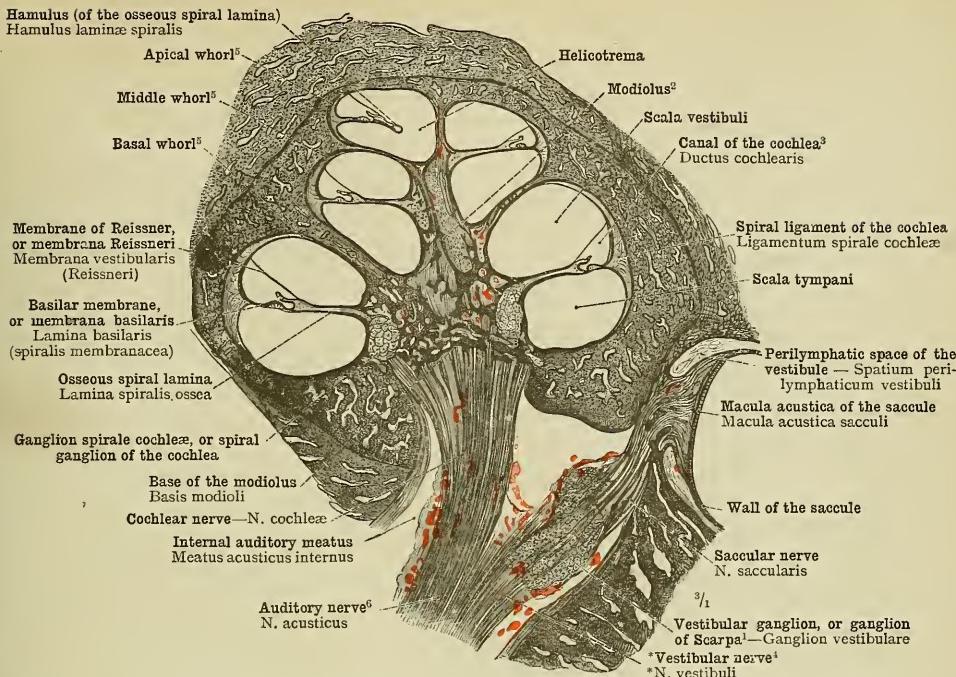


FIG. 1465.—AXIAL SECTION THROUGH THE DECALCIFIED COCHLEA OF A NEW-BORN INFANT. ENTRANCE OF THE COCHLEAR NERVE. ON THE RIGHT SIDE OF THE PREPARATION WE SEE THE MACULA ACUSTICA OF THE SACCULE, THE NERVE TERMINAL OF THE SACCULAR NERVE, AND ALSO THE VESTIBULAR GANGLION OR GANGLION OF SCARPA, GANGLION VESTIBULARE.¹

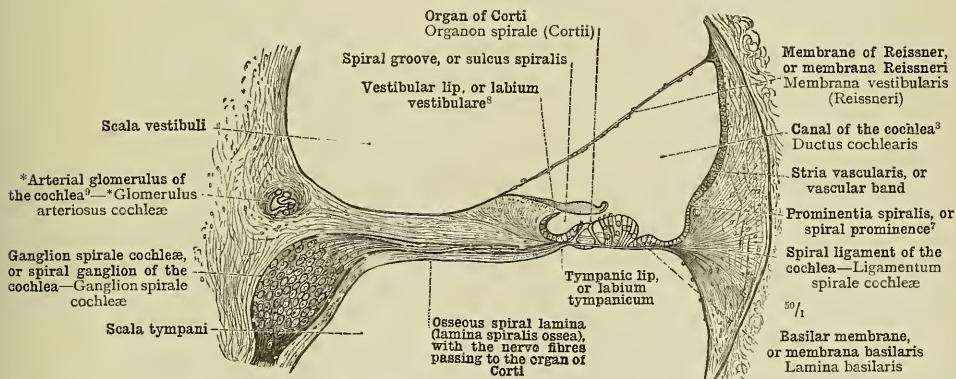


FIG. 1466.—AXIAL SECTION THROUGH ONE OF THE WHORLS OF THE COCHLEA (see Appendix, note ⁵³⁰). CANAL OF THE COCHLEA, DUCTUS COCHLEARIS,³ WITH THE TERMINAL APPARATUS OF THE COCHLEAR NERVE, KNOWN AS THE ORGAN OF CORTI, ORGANON SPIRALE.

¹ Or *intumescentia ganglionis Scarpa*.

² Also known as the *collicula cochleæ*.
³ Or, more briefly, the *cochlear canal*. Also known in England by the Latin names *canalis (membranaceus) cochlea* and *ductus cochlearis*. It was formerly known as the *scala media*. See also Appendix, note 530.

⁴ See Appendix, note 548.

⁵ See Appendix, note 530.

⁶ Eighth cranial nerve in Soemmering's enumeration; *portio mollis* of the seventh in that of Willis.

⁷ See Appendix, note 549.

⁸ The *vestibular lip* of the osseous spiral lamina is also known as the *crista spiralis*, and sometimes as the *labium sulcatum* (Macalister).

⁹ See Appendix, note 530.

Auris interna—The internal ear.—Termination of the Auditory Nerve.

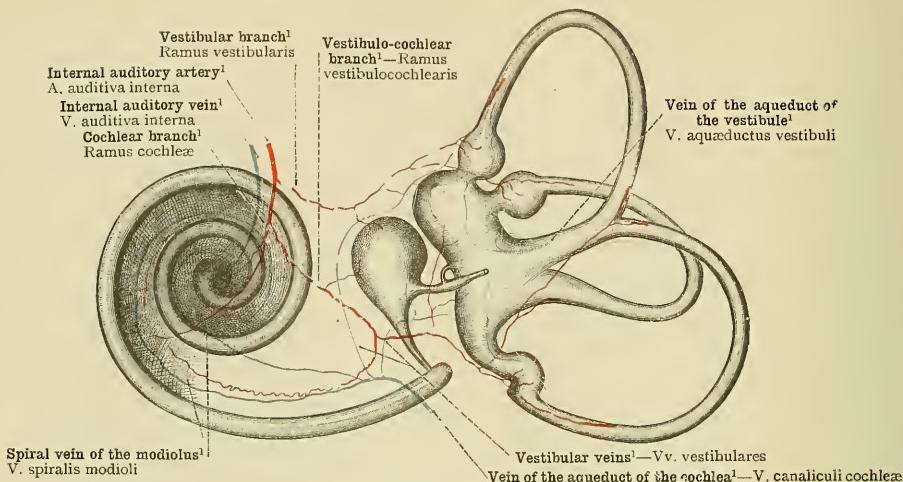


FIG. 1467.—DIAGRAMMATIC REPRESENTATION OF THE DISTRIBUTION OF THE BLOODVESSELS OF THE MEMBRANOUS LABYRINTH. (BASED ON THE RESEARCHES OF SIEBENMANN; see Appendix, note ⁵⁵¹.)

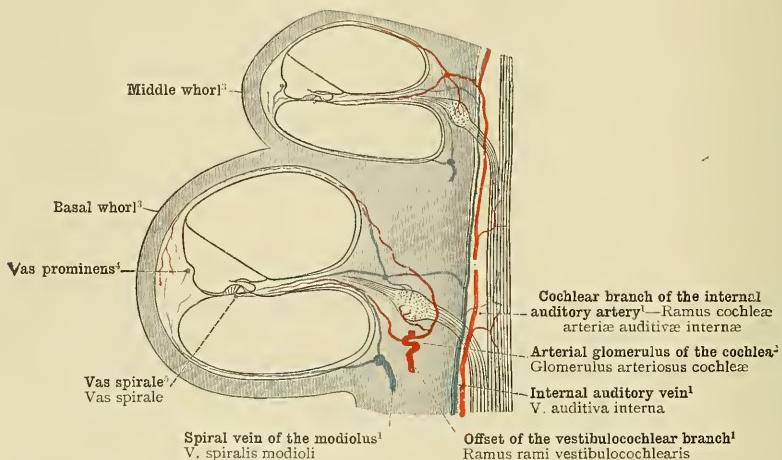


FIG. 1468.—DIAGRAMMATIC REPRESENTATION OF THE DISTRIBUTION OF THE BLOODVESSELS OF THE COCHLEA (see Appendix, note ⁵⁵¹).

¹ See Appendix, note ⁵⁵¹.

² See Appendix, note ⁵⁵⁰.

³ See Appendix, note ⁵³⁹.

⁴ See Appendix, note ⁵⁴⁰.

⁵ See Appendix, note ⁵⁵².

Auris interna—The internal ear.—The Bloodvessels of the Labyrinth (see Appendix, note ⁵⁵¹).

ORGANON OLFACTUS, CAVUM NASI
THE NOSE

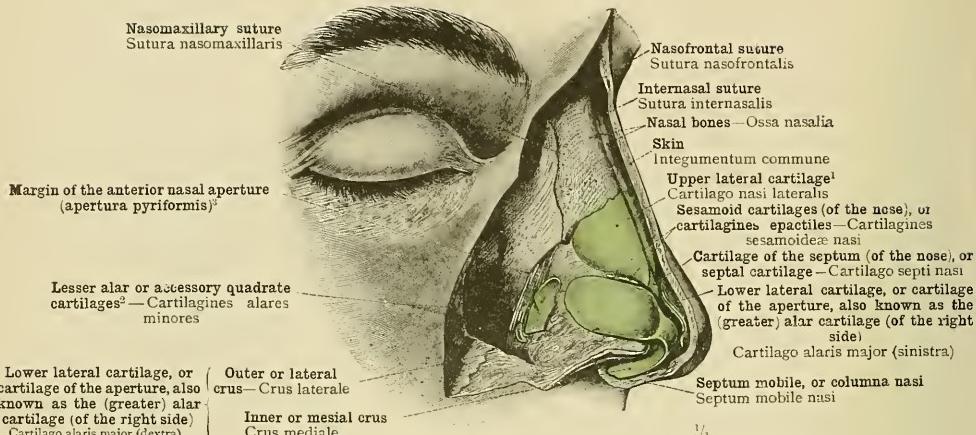


FIG. 1469.—THE CARTILAGES OF THE NOSE, DISPLAYED BY THE REMOVAL OF THE SKIN AND THE MUSCLES FROM THE RIGHT SIDE OF THE NOSE: THE LOWER LATERAL CARTILAGE OR CARTILAGE OF THE APERTURE, ALSO KNOWN AS THE (GREATER) ALAR CARTILAGE, CARTILAGO ALARIS MAJOR, AND THE LESSER ALAR OR ACCESSORY QUADRATÉ CARTILAGES, CARTILAGINES ALARES MINORES,² FORMING THE GROUNDWORK OF THE ALA NASI; THE UPPER LATERAL CARTILAGE, CARTILAGO NASI LATERALIS,¹ WHICH, IN CONJUNCTION WITH THE NASAL BONE, COMPLETES THE FRAMEWORK OF THE DORSUM OF THE NOSE; THE SESAMOID CARTILAGES (OF THE NOSE), OR CARTILAGINES EPACIILES, CARTILAGINES SESAMOIDEÆ NASI.

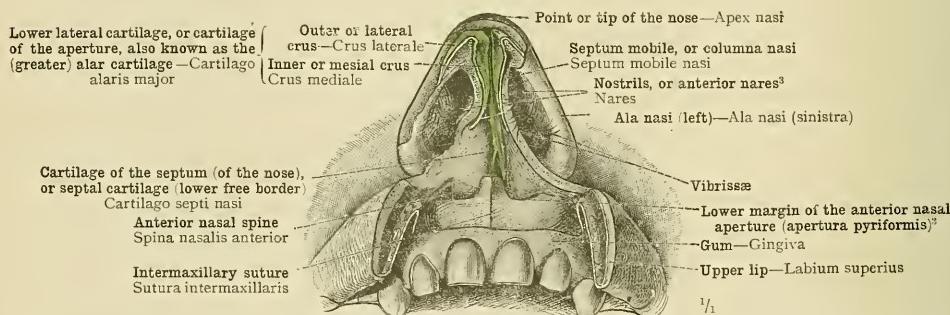


FIG. 1470.—THE NOSTRILS OR ANTERIOR NARES³: BETWEEN THEM IS THE MOBILE PORTION OF THE SEPTUM OF THE NOSE, SEPTUM MOBILE OR COLUMNÆ NASI (ALSO KNOWN IN THE GERMAN OFFICIAL NOMENCLATURE AS "SEPTUM MEMBRANACEUM NASI"; AS GROUNDWORK OF THE NOSTRILS WE SEE ON EACH SIDE THE INNER OR MESIAL CRUS OF THE LOWER LATERAL CARTILAGE OR CARTILAGE OF THE APERTURE, CARTILAGO ALARIS MAJOR.

¹ By Macalister called the *lateral expansion of the septal cartilage*; or sometimes, the *lower lateral cartilage* of Quain being by Macalister called the *alar cartilage*, the *upper lateral cartilage* of Quain is by Macalister called simply the *lateral cartilage*.

² *Cartilagine accessoria quadrata* of Quain. This name is given in contrast with the name of (greater) alar cartilage by which the lower lateral cartilage or cartilage of the aperture is sometimes known. Quain, however, calls them *cartilagines minores vel quadratae*; while the name *accessory quadrate cartilages* is used by Macalister.

³ *Anterior Nasal Aperture and Anterior Nares*.—The *anterior nasal aperture* (*apertura pyriformis*) in the official German nomenclature, and the name is often used also in England) is the anterior orifice of the nasal fossæ in the dried skull; the *anterior nares*, on the other hand, are the *nostrils*, the anterior orifices of the nasal fossæ when the soft parts are intact.

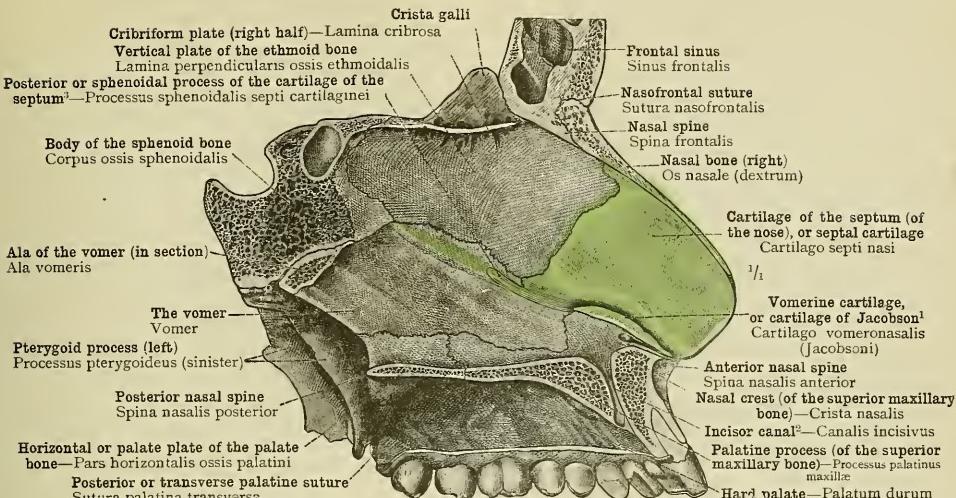


FIG. 1471.—THE OSSEOUS AND CARTILACINOUS SEPTUM OF THE NOSE, SEPTUM OSSEUM ET SEPTUM CARTILAGINUM NASI; ALONG THE LOWER BORDER OF THE CARTILAGE OF THE SEPTUM IS THE VOMERINE CARTILAGE OR CARTILAGE OF JACOBSON (CARTILAGO VOMERONASALIS—see Appendix, note 553). SEEN FROM THE RIGHT SIDE.

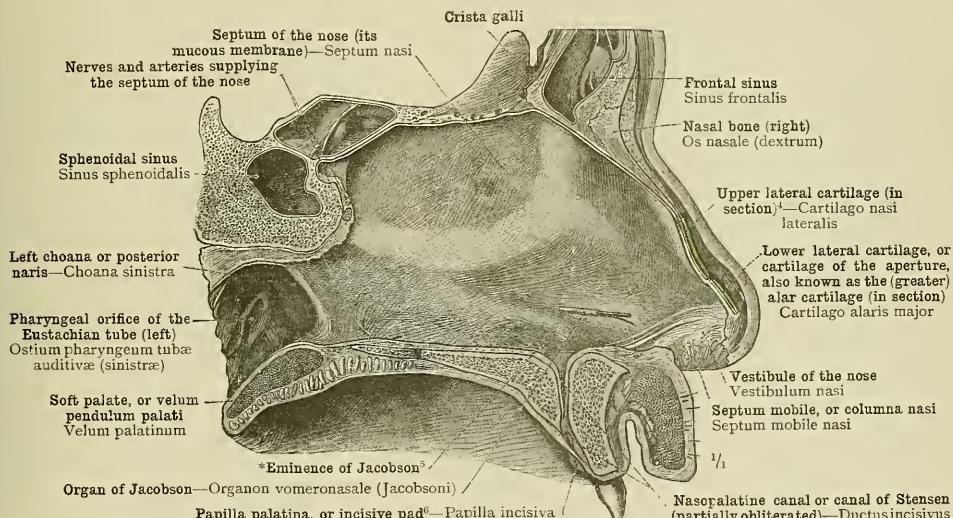


FIG. 1472.—THE NASAL SEPTUM, SEPTUM NASI, COVERED BY ITS MUCOUS MEMBRANE, SEEN FROM THE RIGHT SIDE. CORRESPONDING TO THE LOWER margin of the CARTILAGE OF THE SEPTUM IS THE BOUNDARY BETWEEN THE VESTIBULE OF THE NOSE, VESTIBULUM NASI, AND THE NASAL FOSSA PROPER, CAVUM NASI. A SOUND HAS BEEN PASSED INTO THE CANAL OF THE RUDIMENTARY ORGAN OF JACOBSEN.

¹ See Appendix, note 553.

² See Appendix, note 451.

³ The Latin name only of this process is mentioned by Quain—processus posterior seu sphenoidalis.

⁴ See note ¹ to p. 942.

⁵ See Appendix, note 554.

⁶ See note 5 to p. 416, in Part IV.

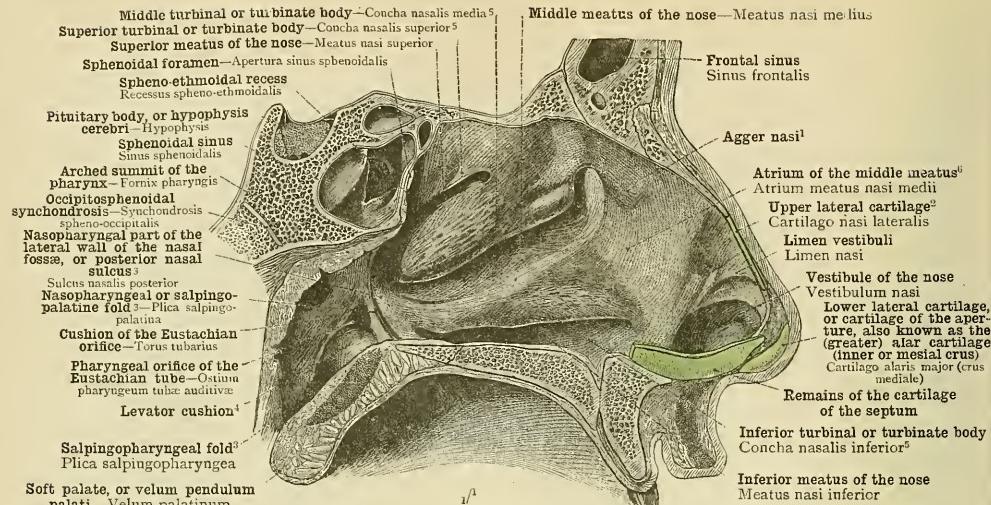


FIG. 1473.—THE LEFT LATERAL WALL OF THE NASAL FOSSÆ WITH THE TURBINATE BONES AND THE NASAL MEATUS. THE VESTIBULE OF THE NOSE, VESTIBULUM NASI, IS MARKED OFF FROM THE NASAL FOSSÆ PROPER BY THE LINEN VESTIBULI, LINEN NASI, WHICH CORRESPONDS TO THE LOWER MARGIN OF THE UPPER LATERAL CARTILAGE.

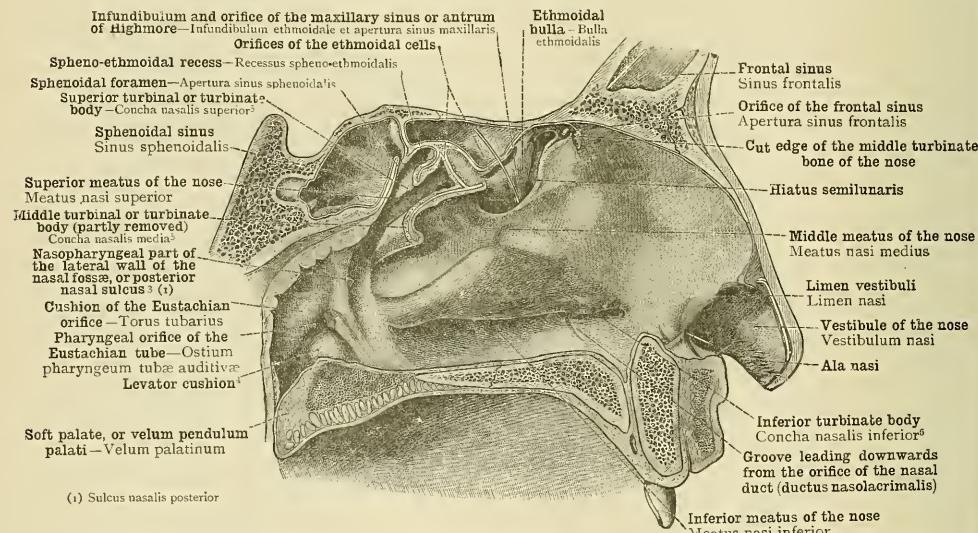


FIG. 1474.—THE LEFT LATERAL WALL OF THE NASAL FOSSÆ, THE GREATER PART OF THE MIDDLE TURBINALE AND THE ANTERIOR PORTION OF THE SUPERIOR TURBINALE HAVING BEEN REMOVED. THE ORIFICES OF THE ACCESSORY CAVITIES OF THE NOSE, SINUS PARANASALES: OF THE SPHENOIDAL SINUS, SINUS SPHENOIDALIS, THE FRONTAL SINUS, SINUS FRONTALIS, AND THE MAXILLARY SINUS OR ANTRUM OF HIGHMORE, SINUS MAXILLARIS. THE TWO LAST-NAMED ORIFICES ARE DISTINGUISHED BY SOUNDS WHICH HAVE BEEN PASSED THROUGH THEM.

¹ Agger Nasi.—This ridge, which is visible also in the dried bone (see Fig. 160, p. 78, and Figs. 203 and 204, p. 93, Part I.), is a rudiment of the nasoorbital metaplastia found in most mammals.

² See note ¹ to p. 942.

³ See Appendix to Part IV., note 4.

⁴ See note 4 to p. 436, in Part IV.

⁵ Concha Nasalis.—In Told's nomenclature the same term, *concha nasalis*, is used to denote the *turbinate bone* and the *turbinal or turbinate body*—i.e., the turbinate bone covered by mucous membrane.

⁶ By Macalister called the *region of the atrium*.

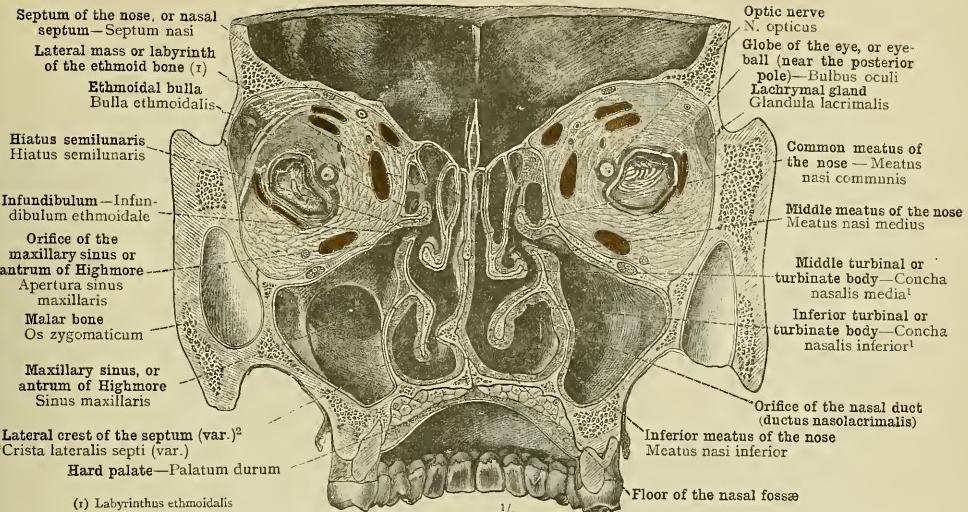


FIG. 1475.—CORONAL SECTION PASSING NEARLY THROUGH THE MIDDLE OF THE NASAL FOSSEÆ. THE ANTERIOR SEGMENT VIEWED FROM BEHIND. ORIFICES OF THE MAXILLARY SINUSES OR ANTRA OF HIGHMORE. THE ORBITS ARE DIVIDED IN A PLANE IMMEDIATELY BEHIND THE ENTRANCE OF THE OPTIC NERVE INTO THE EYEBALL.

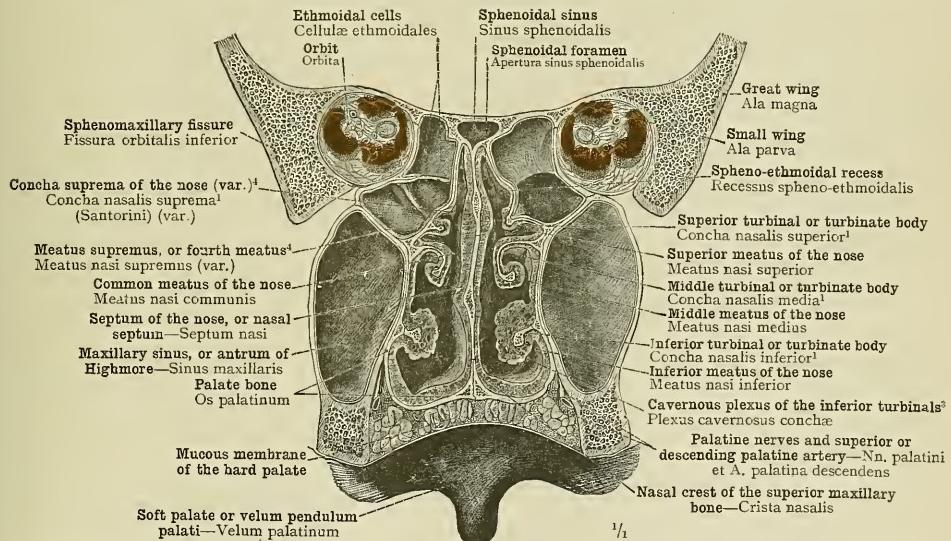


FIG. 1476.—CORONAL SECTION THROUGH THE POSTERIOR PART OF THE NASAL FOSSEÆ AND THE MAXILLARY SINUSES OR ANTRA OF HIGHMORE. THE POSTERIOR SEGMENT VIEWED FROM BEFORE. SPHENOIDAL FORAMINA.

² See note 5 to p. 944.

³ See Appendix, note 555.

See Appendix, note 556.

⁴ See Appendix, note 557.

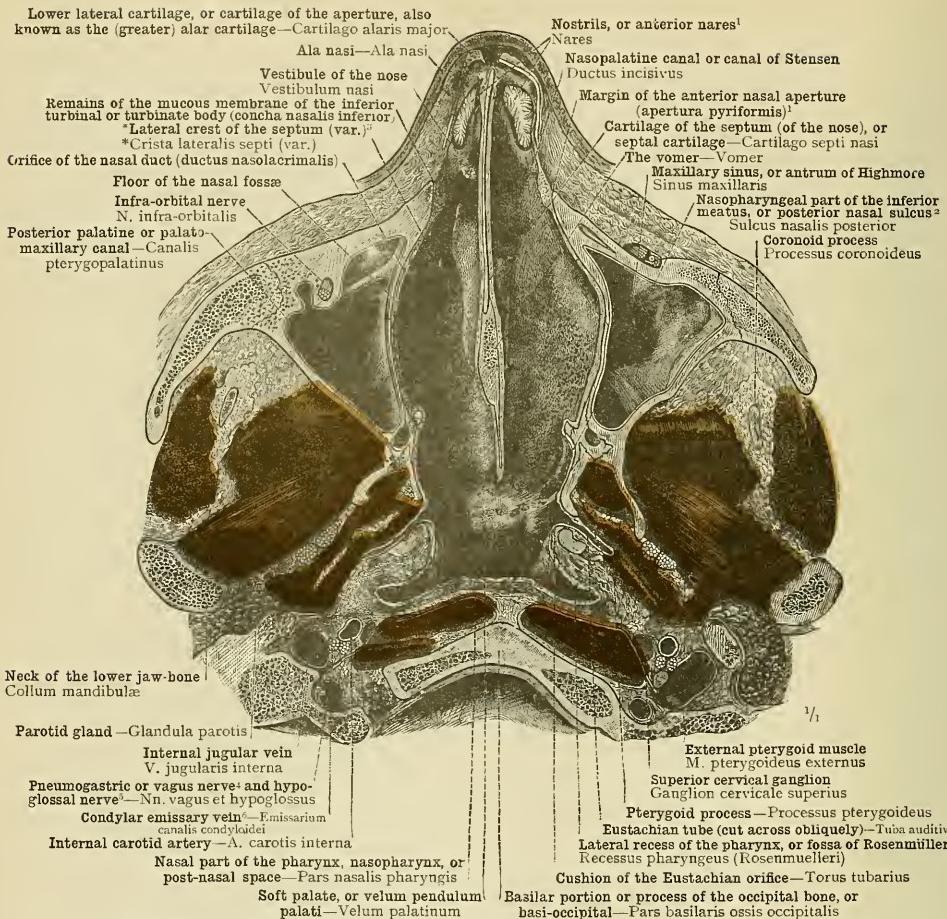


FIG. 1477.—HORIZONTAL SECTION THROUGH THE LOWER PART OF THE NASAL FOSSE AND THE MAXILLARY SINUSES, OR ANTRA OF HIGHMORE, AND THROUGH THE NASAL PART OF THE PHARYNX, NASOPHARYNX, OR POST-NASAL SPACE. THE LOWER SEGMENT VIEWED FROM ABOVE. THE SECTION PASSES THROUGH THE NECK OF THE LOWER JAW-BONE, AND THROUGH THE BASILAR PORTION OR PROCESS OF THE OCCIPITAL BONE, OR BASI-OCCIPITAL, IMMEDIATELY ABOVE THE FORAMEN MAGNUM. IN THE REGION OF THE NASAL FOSSE THE PLANE OF SECTION PASSES THROUGH THE ANTERIOR AND POSTERIOR EXTREMITIES OF THE INFERIOR TURBINAL OR TURBINATE BODY; THE LOWER SEGMENT OF THE LATTER HAS BEEN REMOVED, SO THAT THE FLOOR OF THE NASAL FOSSE IS EXPOSED THROUGHOUT ITS WHOLE EXTENT AS WELL AS THE LOWER PART OF THE OUTER WALL. ON THE LEFT SIDE OF THE SEPTUM OF THE NOSE A *LATERAL CREST, *CRISTA LATERALIS SEPTI (VARIETY—see Appendix, note 555), IS MET WITH. IN THE NASOPHARYNX THE SECTION TRAVERSES ON EACH SIDE THE PHARYNGEAL ORIFICE OF THE EUSTACHIAN TUBE, THE CUSHION OF THE EUSTACHIAN ORIFICE (TORUS TUBARIUS), AND THE LATERAL RECESS OF THE PHARYNX, OR FOSSA OF ROSENmüLLER.

¹ See note 3 to p. 942.

² See Appendix to Part IV., note 4.

³ See Appendix, note 555.

⁴ Tenth cranial nerve in Soemmerring's enumeration; second trunk of the eighth cranial nerve in that of Willis.

⁵ Twelfth cranial nerve in Soemmerring's enumeration, ninth in that of Willis; also known as the *lingual motor nerve*.

⁶ See Appendix to Part V., note 251.

Cavum nasi—The nasal fossæ.

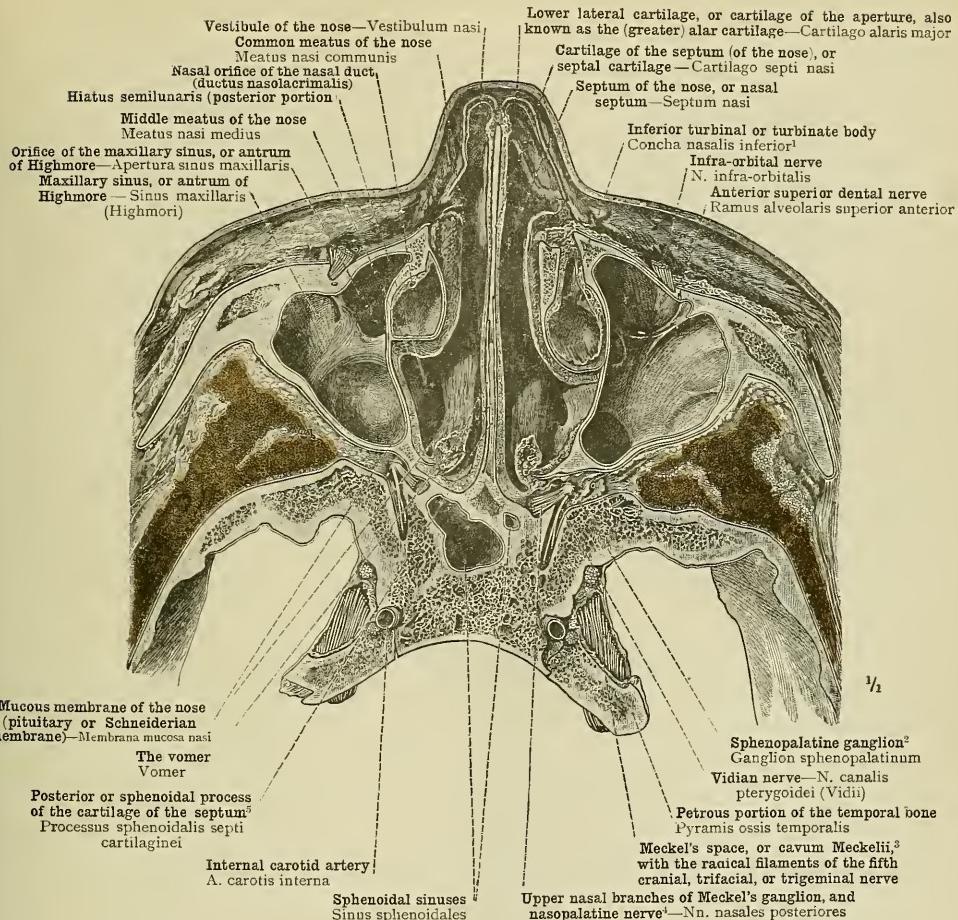


FIG. 1478.—OBLIQUE SECTION THROUGH THE NASAL FOSSE, DESCENDING AS IT PASSES FORWARDS, IN A PLANE ALMOST PARALLEL WITH THAT OF THE INFERIOR WALLS OF THE OREBITS. THE UPPER SEGMENT VIEWED FROM BELOW. BEHIND, THE SECTION SHOWS THE MIDDLE MEATUS; IN FRONT, THE INFERIOR MEATUS AND THE VESTIBULE OF THE NOSE. OF THE ACCESSORY CAVITIES OF THE NOSE, THE MAXILLARY SINUSES OR ANTRA OF HIGHMORE ARE CUT ACROSS IN THEIR GREATEST WIDTH, SO THAT THEIR ROOFS ARE FULLY DISPLAYED; WHILE THE SPHENOIDAL SINUSES ARE OPENED CLOSE TO THEIR LOWER EXTREMITIES. IN THE REGION OF THE SPHENOMAXILLARY FOSSA, THE UPPER PART OF WHICH TOGETHER WITH THE SPHENOPALATINE FORAMEN, FORAMEN SPHENOPALATINUM, AND THE ANTERIOR HALF OF THE VIDIAN OR PTERYGOID CANAL, CANALIS PTERYGOIDEUS (VIDI), APPEARS IN THE PLANE OF SECTION, THE SPHENOPALATINE GANGLION, GANGLION SPHENOPALATINUM,² THE VIDIAN NERVE, NERVUS CANALIS PTERYGOIDEI, AND THE PROXIMAL PORTIONS OF THE UPPER NASAL BRANCHES OF THE SPHENOPALATINE GANGLION AND THE NASOPALATINE NERVE, NN. NASALES POSTERIORES (see Appendix, note 4³), ARE VISIBLE.

¹ See note 5 to p. 944.

² See Appendix, note 558.

³ Known also as *Meckel's ganglion* and as the *nasal ganglion*.

⁴ See Appendix, note 459.

⁵ See note 3 to p. 943.

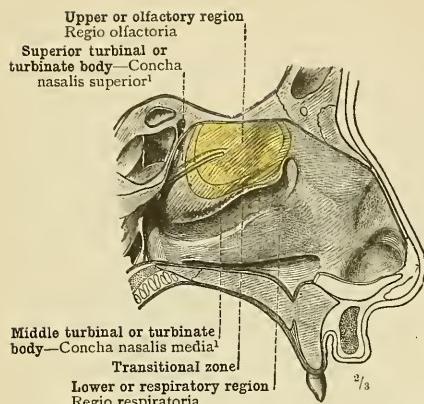


FIG. 1479.—LATERAL WALL OF THE
LEFT NASAL FOSSA.

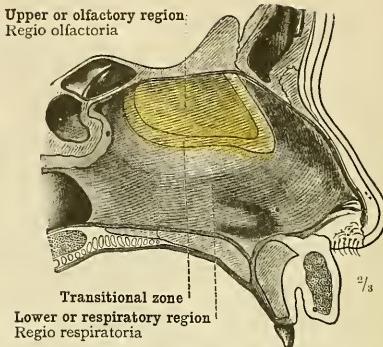


FIG. 1480.—MESIAL WALL OF THE
RIGHT NASAL FOSSA.

THE DELIMITATION OF THE UPPER OR OLFACTORY AND THE LOWER OR RESPIRATORY REGIONS OF THE NOSE, WITH THE TRANSITIONAL ZONE, WHICH VARIES GREATLY IN DIFFERENT INDIVIDUALS. WITH REGARD TO THE RADIATION OF THE OLFACTORY NERVES, COMPARE FIGS. 1302 AND 1303.

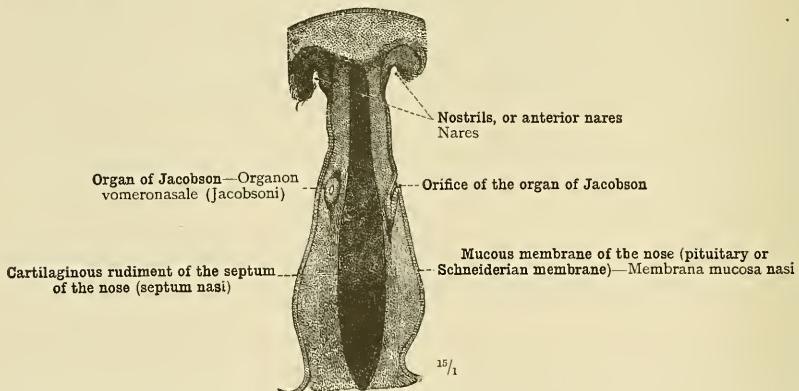


FIG. 1481.—THE ORGAN OF JACOBSON, ORGANON VOMERONASALE, OF A HUMAN FETUS IN THE FOURTH MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 8·8 CENTIMETRES (3·465 INCHES), AS SEEN IN A HORIZONTAL SECTION THROUGH THE LOWER PORTION OF THE NASAL SEPTUM. ON THE LEFT SIDE THE CANAL IS DIVIDED OBLIQUELY; ON THE RIGHT SIDE ITS ORIFICE APPEARS IN THE PLANE OF SECTION.

¹ See note 5 to p. 944.

Cavum nasi—The nasal fossæ.

ORGANON TACTUS,
INTEGUMENTUM COMMUNE
THE ORGAN OF TOUCH,
THE SKIN

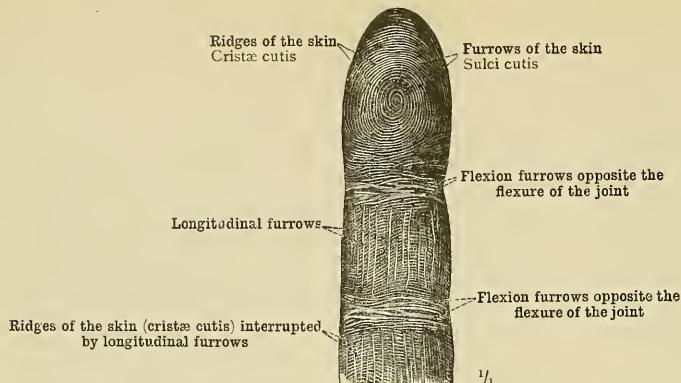


FIG. 1482.—THE FURROWS AND RIDGES OF THE SURFACE OF THE SKIN, REPRODUCED FROM AN IMPRESSION OF THE PALMAR SURFACE OF THE MIDDLE FINGER.

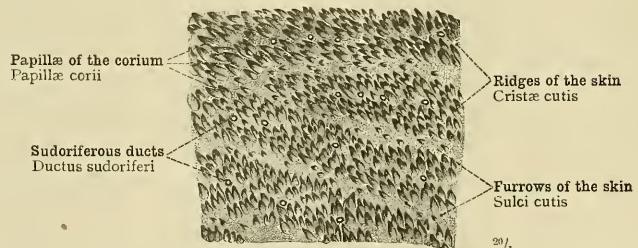


FIG. 1483.—THE FURROWS AND RIDGES OF THE TRUE SKIN, CUTIS VERA, OR CORIUM, ON THE PALMAR SURFACE OF ONE OF THE FINGERS, THE EPIDERMIS HAVING BEEN REMOVED. DRAWN WITH THE AID OF THE STEREOSCOPIC MICROSCOPE. ARRANGEMENT OF THE PAPILLÆ AND OF THE EFERENT DUCTS OF THE SUDORIFEROUS GLANDS OR SWEAT GLANDS.

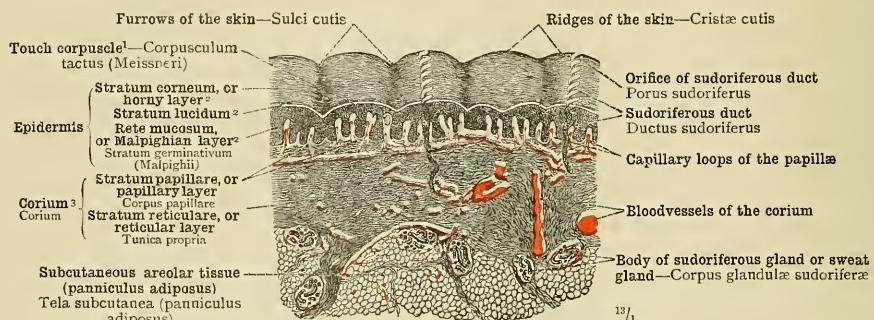


FIG. 1484.—VERTICAL SECTION THROUGH THE SKIN, CUTIS, OF THE FINGER-TIP. THE LAYERS OF THE EPIDERMIS² AND OF THE CORIUM.³ THE SUBCUTANEOUS AREOLAR TISSUE, TELA SUBCUTANEA. THE SUDORIFEROUS OR SWEAT GLANDS.

The bloodvessels have been injected with red-coloured gelatine.

¹ See Appendix, note 384.

² See Appendix, note 559.

³ The corium is also known as the *derma*, *cutis vera*, or *true skin*.

Cutis—The skin.

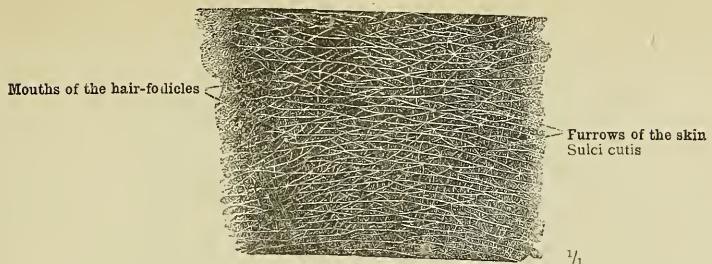


FIG. 1485.—THE FURROWS OF THE SKIN AND THE AREAS WHICH THESE FURROWS DELIMIT, REPRODUCED FROM AN IMPRESSION OF THE DORSAL SURFACE OF THE WRIST.

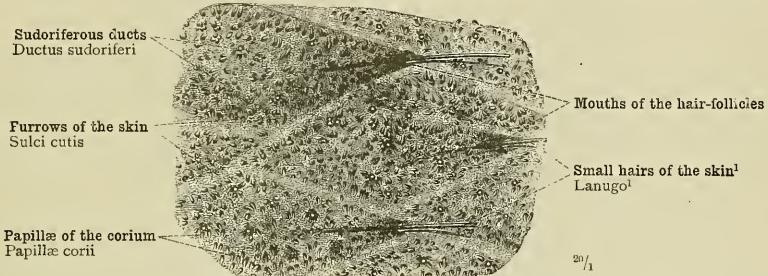


FIG. 1486.—THE FURROWS OF THE SKIN AND THE AREAS WHICH THESE FURROWS DELIMIT ON THE DORSAL SURFACE OF THE WRIST, AS DISPLAYED ON THE CORIUM WHEN THE EPIDERMIS HAS BEEN REMOVED. DRAWN WITH THE AID OF THE STEREOSCOPIC MICROSCOPE. THE ARRANGEMENT OF THE PAPILLÆ AND OF THE EFFERENT DUCTS OF THE SUDORIFEROUS GLANDS OR SWEAT GLANDS.

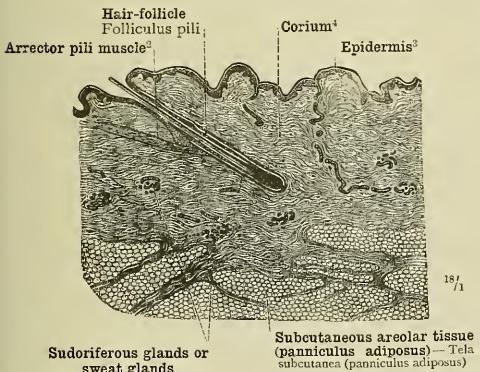


FIG. 1487.—VERTICAL SECTION THROUGH THE SKIN, CUTIS, OF THE TRUNK IN THE REGION OF THE ARCH OF THE RIBS. ONE OF THE SMALL HAIRS OF THE SKIN IS SEEN IN LONGITUDINAL SECTION. SUDORIFEROUS GLANDS OR SWEAT GLANDS AND THEIR EFFERENT DUCTS.

¹ Regarding the German use of the term *Lanugo*, see Appendix, note 593.

² By Macalister named *erector pili muscle*, but the form used in the text is that most generally employed.

³ See Appendix, note 599.

⁴ The *corium* is also known as the *derma, cutis vera, or true skin*.

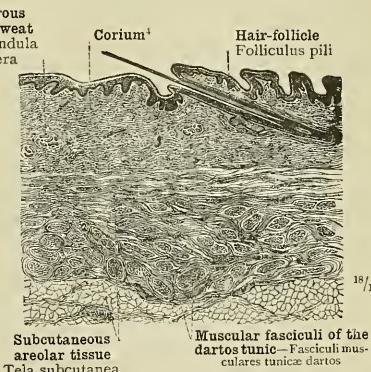


FIG. 1488.—VERTICAL SECTION THROUGH THE SKIN, CUTIS, AND THE DARTOS TUNIC, TUNICA DARTOS, OF THE SCROTUM. THE MUSCULAR FASCICULI OF THE LATTER ARE CUT ACROSS. ONE OF THE PUBIC HAIRS IS SEEN IN LONGITUDINAL SECTION. SUDORIFEROUS GLANDS OR SWEAT GLANDS.

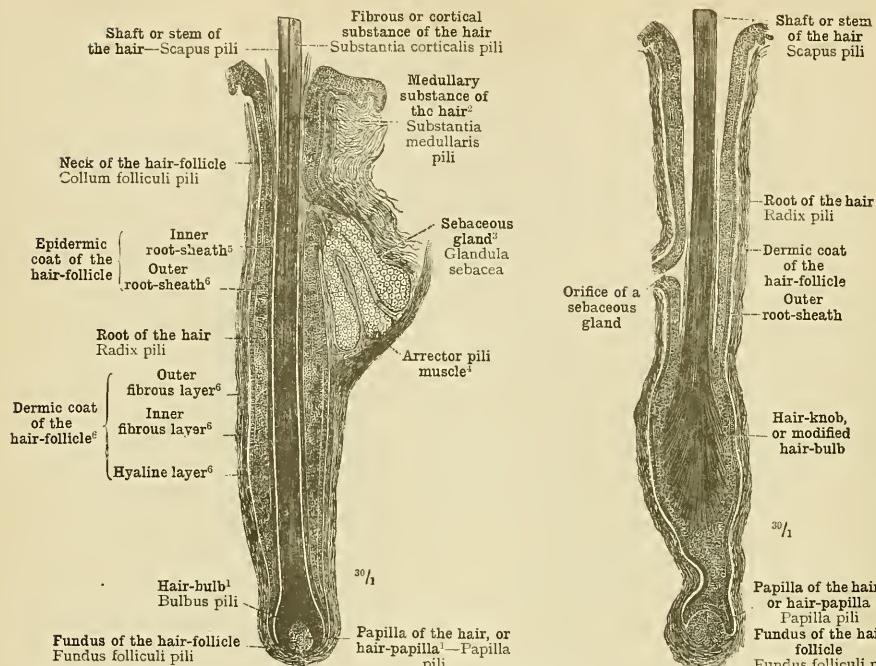


FIG. 1489.—A HAIR OF THE HEAD (CAPILLUS) STILL IN COURSE OF GROWTH, WITH HAIR-BULB, BULBUS PILI,¹ IN LONGITUDINAL SECTION. HAIR-FOLLICLE, SEBACEOUS GLAND OR FOLLICLE, GLANDULA SEBACEA, AND ARRECTOR OR ERECTOR PILI MUSCLE.

FIG. 1490.—A HAIR OF THE HEAD (CAPILLUS) ABOUT TO BE SHED, WITH HAIR-KNOB OR MODIFIED HAIR-BULB,¹ IN LONGITUDINAL SECTION. HAIR-FOLLICLE, AND PAPILLA OF THE HAIR THAT IS ABOUT TO DEVELOP IN PLACE OF THE OLD ONE.

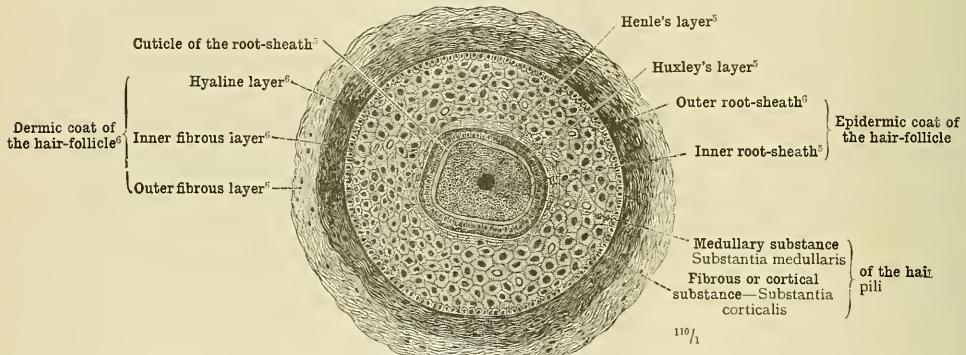


FIG. 1491.—A MOUSTACHE HAIR WITH ITS HAIR-FOLLICLE IN TRANSVERSE SECTION. THE LAYERS OF THE HAIR FOLLICLE (see Appendix, notes 56¹ and 56²).

¹ See Appendix, note 56¹.
² Or sebaceous follicle.

² Also called more shortly the medulla or pith of the hair.
⁴ See note ² to p. 951.

⁵ See Appendix, note 56¹.

⁶ See Appendix, note 56².

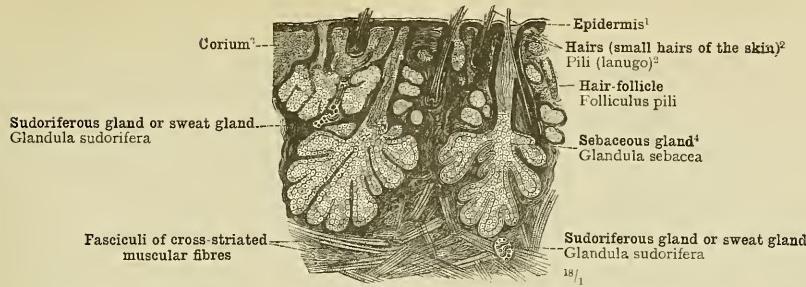


FIG. 1492.—VERTICAL SECTION THROUGH THE SKIN OF THE ALA NASI. SEBACEOUS GLANDS OR FOLLICLES, GLANDULÆ SEBACEÆ, WITH THE SMALL HAIRS OF THE SKIN, LANUGO (see Appendix, note 503). SUDORIFEROUS GLANDS OR SWEAT GLANDS, GLANDULÆ SUDORIFERÆ. CROSS-STRIATED MUSCULAR FIBRES ENTERING THE SKIN.

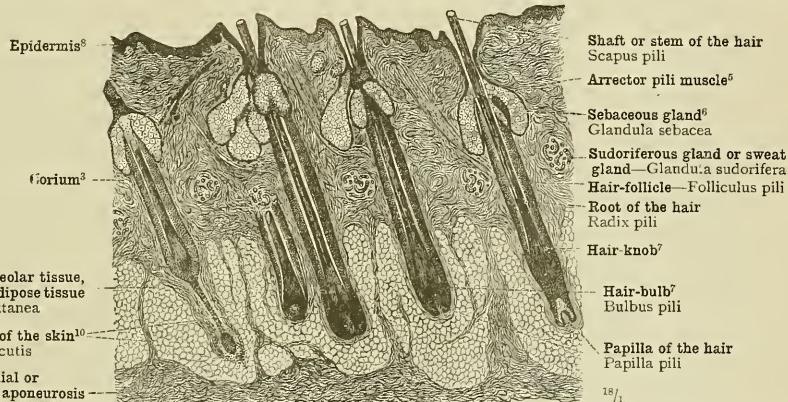


FIG. 1493.—VERTICAL SECTION THROUGH THE SKIN OF THE HEAD. HAIRS OF THE HEAD, CAPILLI, IN LONGITUDINAL SECTION, WITH SEBACEOUS GLANDS OR FOLLICLES AND MUSCLES OF THE HAIR-FOLLICLES, MUSCULI ARRECTORES VEL ERECTORES PILORUM. SUDORIFEROUS GLANDS OR SWEAT GLANDS.

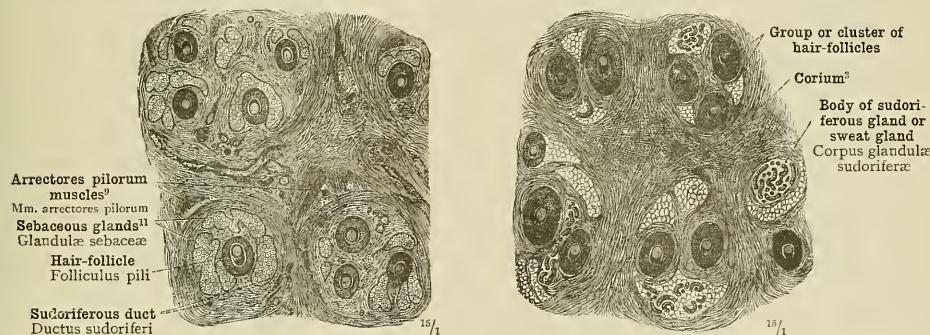


FIG. 1494.—HORIZONTAL SECTION THROUGH THE SKIN OF THE HEAD AT THE LEVEL OF THE SEBACEOUS GLANDS OR FOLLICLES. HAIR-FOLLICLES, FOLLICULI PILORUM, AND MUSCLES OF THE HAIR-FOLLICLES, MUSCULI ARRECTORES VEL ERECTORES PILORUM, IN HORIZONTAL SECTION.

¹ See Appendix, note 559. ² Regarding the German use of the term *lamina*, see Appendix, note 553.

³ The corium is also known as the *derma cutis vera*, or true skin.

⁴ Or *sebaceous follicles*.

⁵ See Appendix, note 550.

⁶ By Macalister named *erectores pilorum muscles*, but the form used in the text is that most generally employed.

¹⁰ See Appendix, note 563.

⁷ See Appendix, note 559.

⁸ Or *sudoriferous follicles*.

⁹ See note 2 to p. 951.

¹¹ Or *sebaceous follicles*.

Pili—Hairs.—Glandulæ sebaceaæ—Sebaceous glands or follicles.—Glandulæ sudoriferae—Sudoriferous glands or sweat glands.

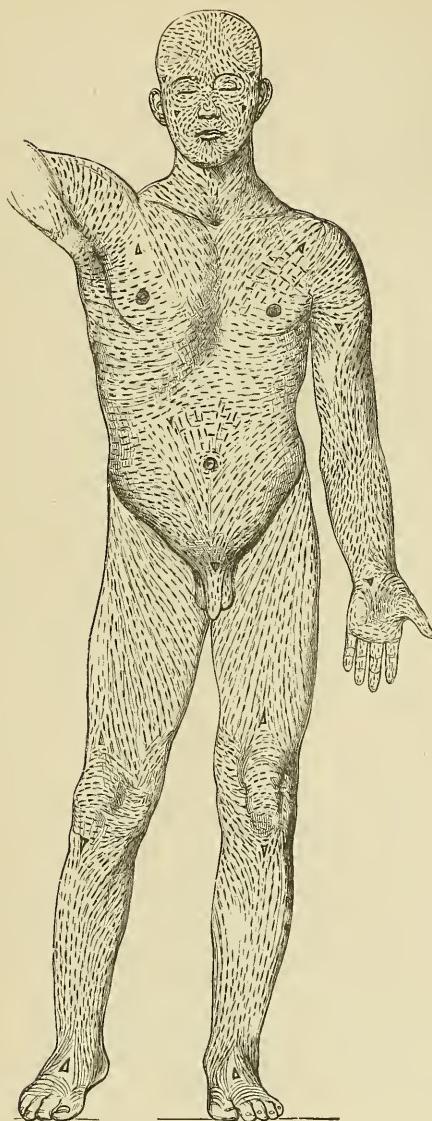


FIG. 1496.—ANTERIOR SURFACE.

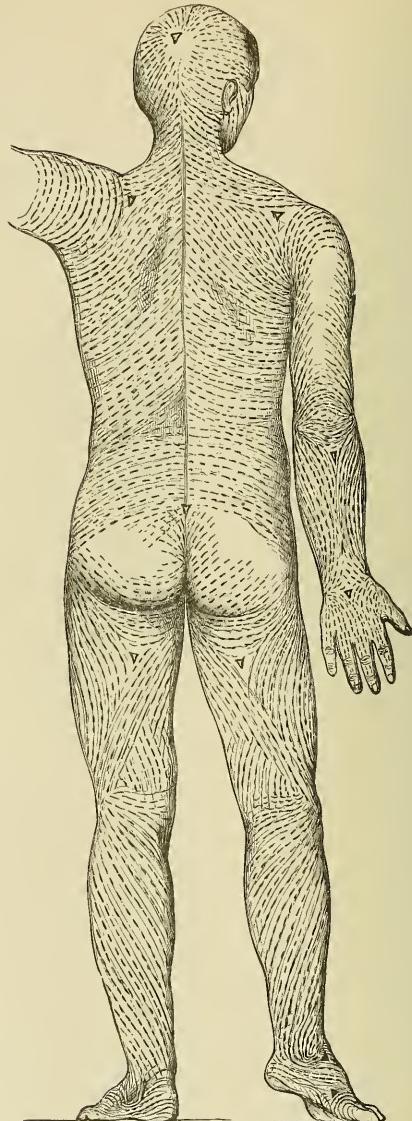


FIG. 1497.—POSTERIOR SURFACE.

THE GENERAL COURSE OF THE CONNECTIVE-TISSUE BUNDLES OF THE CORIUM, DETERMINED BY THE DIRECTION ASSUMED BY THE LINEAR CLEAVES MADE IN THE SKIN WHEN IT IS PUNCTURED BY A ROUND AWL.¹ (AFTER C. LANGER.)

¹ See Appendix, note 564.

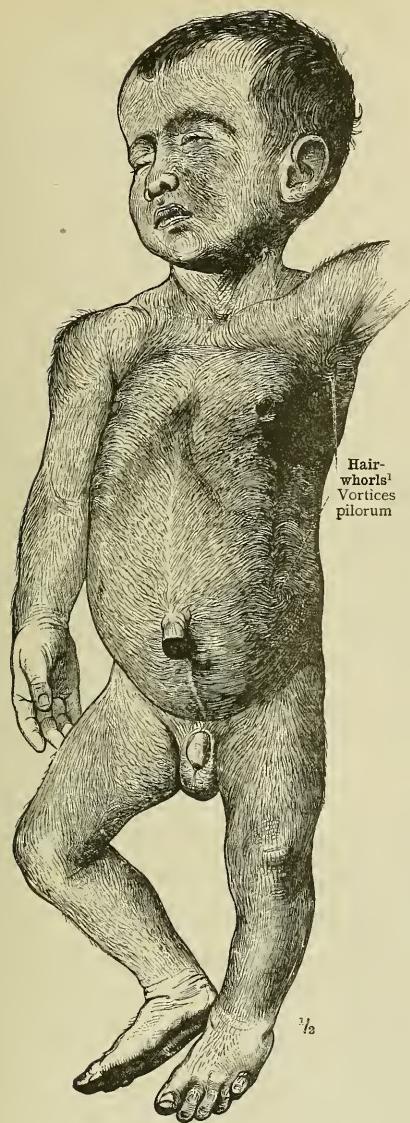


FIG. 1498.—ANTERIOR SURFACE.

THE DIRECTION OF THE HAIRS ON THE DIFFERENT PARTS OF THE BODY. FœTUS IN THE NINTH MONTH OF INTRA-UTERINE LIFE (MONTHS OF FOUR WEEKS EACH).

* See Appendix, note 554.

2 See note 3 to p. 528, in Part IV.

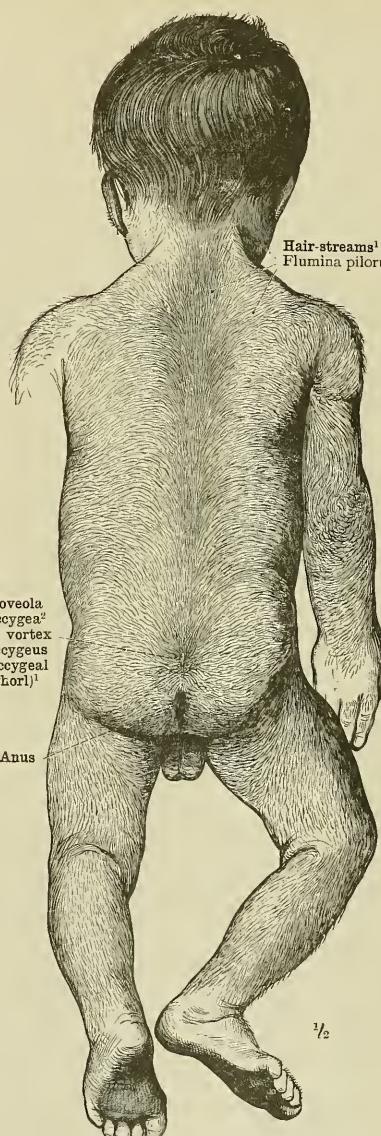


FIG. 1499.—POSTERIOR SURFACE.

Hair-streams—Flumina pilorum.—Hair-whorls—Vortices pilorum (see note ¹ above).

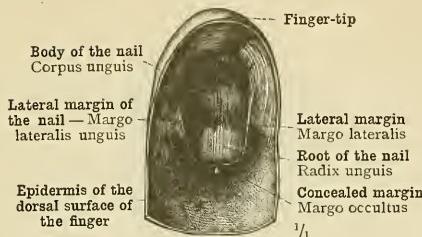


FIG. 1500.—THE FINGER-NAIL, WITH THE ADJOINING AREA OF EPIDERMIS, DETACHED FROM THE CORIUM BY THE ACTION OF SUPERHEATED STEAM. SEEN FROM THE CONCAVE SIDE.



FIG. 1501.—FINGER-NAIL, COMPLETELY ISOLATED. SEEN FROM THE CONVEX SIDE.

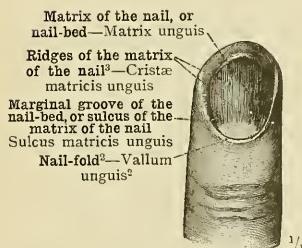


FIG. 1502.—THE MATRIX OF THE NAIL OR NAIL-BED, MATRIX UNGUIS, WITH THE NAIL-FOLD AND NAIL-WALLS, VALLUM UNGUIS,² DISPLAYED BY THE REMOVAL OF THE EPIDERMIC PORTION OF THE NAIL OR NAIL-PROPER AND THE SURROUNDING EPIDERMIS.

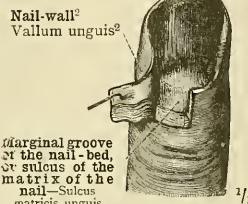


FIG. 1503.—MATRIX OF THE NAIL OR NAIL-BED, WITH PARTLY OPENED MARGINAL GROOVE OF THE NAIL-BED, SULCUS MATRICIS UNGUIS.



FIG. 1504.—LONGITUDINAL SECTION THROUH THE NAIL AND THE TERMINAL PORTION OF THE MIDDLE FINGER.

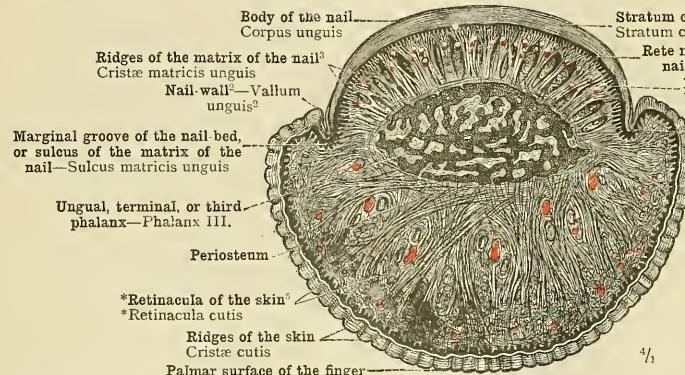


FIG. 1505.—TRANSVERSE SECTION THROUGH THE NAIL AND THE TERMINAL PORTION OF THE RING FINGER.

¹ See Appendix, note 559.

² See Appendix, note 566.

³ The ridges of the matrix of the nail are, according to Quain (*op. cit.*, vol. iii., part iii., p. 453), "sometimes, and perhaps more suitably, named laminae."

⁴ See Appendix, note 557.

⁵ See Appendix, note 563.

APPENDIX TO PART VI.

NOTES BY TRANSLATOR

³¹⁸ *Neurilemma* (Figs. 1125, 1126, p. 746).—This forms the outermost covering of the medullated nerve fibres, and exhibits nuclei disposed at regular intervals along its inner surface. Since similar nuclei are seen also on the surface of the non-medullated nerve fibres, it is generally believed that these latter fibres also are invested with neurilemma (see Fig. 1126). As Ranvier, however, pointed out, it is difficult if not impossible to demonstrate the supposed sheath of the non-medullated fibres, and for this reason some histologists believe that the nuclei are imbedded in the peripheral layer of the fibre itself, and that the sheath is non-existent. The *neurilemma* or *neurolemma* (Quain prefers the latter spelling, which is, however, less often used than the former) is also known as the *primitive sheath*, or *sheath of Schwann*. It may be well to point out that the term *neurilemma* was formerly used to denote "the connective-tissue sheath wrapping round the whole nerve" (Foster), or "the connective-tissue sheath of the funiculus [see note ³²⁰ below], which is now known as the *perineurium*" (Quain); but, as Foster remarks ("Physiology," 5th ed., p. 115), "it seemed undesirable to use two such analogous terms as *sarcolemma* and *neurilemma* for two things obviously without analogy, and hence *neurilemma* is now used for that part of the nerve which is obviously analogous to the *sarcolemma* in muscle, viz., the sheath of the fibre."

³¹⁹ *Medullated and Non-Medullated Nerve Fibres* (Figs. 1124-1126, p. 746).—Nerve fibres are distinguished as *medullated* and *non-medullated* respectively according to the presence or absence of the *medullary sheath* (*white substance of Schwann*). Medullated fibres are known also as *double-bordered*, *double-contoured*, or *white* fibres; non-medullated fibres are known also as *pale* fibres; often, also, after their discoverer, they are termed *fibres of Remak*.

³²⁰ *Epineurium, Perineurium, and Endoneurium* (Fig. 1127, p. 746).—The peripheral nerves are invested by a *common sheath* of fibrous tissue (formerly known as the *cellular sheath*); from this sheath, septa of connective tissue pass inwards between the *secondary bundles* or *funiculi*; of which all but the very smallest peripheral nerves contain a plural number. The common sheath and the septa just mentioned constitute the *epineurium*, in which the minute vessels and nerves (*nervi nervorum*) for the nutrition and sensibility of the nerve trunk ramify. Each *funiculus* or *secondary bundle* contains a variable number of nerve fibres, and has therefore no determinate size; it is enclosed in a tubular sheath of connective tissue, known as the *perineurium*. Whereas the epineurium is fibrous in character, the perineurium is distinctly lamellar, and may be separated in the form of a tube from the bundle of fibres which it invests. From its inner surface septa pass inwards among the nerve fibres, dividing them into *primary bundles*, and these septa are continuous with, and are usually described as forming part of, the *endoneurium*, which, for the rest, consists of delicate fibrils of connective tissue, for the most part longitudinally disposed, enmeshing and supporting the individual nerve fibres. In the larger nerve trunks, which contain numerous funiculi, these branch and reunite in a plexi-

form manner. The *epineurium* and *perineurium* were formerly known indifferently as *neurilemma*; the reason for abandoning this nomenclature is given at the end of note ³¹⁸ above. The author does not make use of the term *epineurium*, and would seem in these figures to disregard altogether the *common sheath* of the nerves. Fig. 1127 is said to depict "a portion of the median nerve." At this "portion" is surrounded by laminated *perineurium*, it is, doubtless, part of a single funiculus, dissected out of the nerve trunk.

³²¹ *Recent Advances in the Histology of Nervous Tissue* (Figs. 1128 to 1131, p. 747).—As a result of recent investigations into the minute structure of the nervous system, more especially those of Golgi and Ramón y Cajal, certain new conceptions regarding that structure have arisen, accompanied by a new nomenclature, in exposition of which I quote the following passage from the fourth edition of Halliburton's "Physiology," pp. 195, 196:—"The whole nervous system consists of nerve cells and their branches, supported by neuroglia in the central nervous system, and by connective tissue in the nerves. Some of the processes of a nerve cell break up almost immediately into smaller branches, ending in arborescences of fine twigs; these branches, which used to be called protoplasmic processes, are now termed *dendrons*, and the fine twigs *dendrites*; one branch becomes the long axis-cylinder of a nerve fibre, but it also ultimately terminates in an arborization. It is called the *axis-cylinder process*, or, more briefly, the *axon*. The term *neuron* is applied to the complete nerve unit—that is, the body of the cell, and all its branches. Some observers have supposed that the axis-cylinder process is the only one that conducts nerve impulses, the dendron being rootlets which suck up nutriment for the nerve cell. This exclusive view has not, however, been generally accepted; the dendrons may be nutritive, but it is believed that they also, like the rest of the nerve unit, are concerned in the conduction of nerve impulses. A strong piece of evidence in this direction is the fact that the fibrils of the axis-cylinder may be traced through the body of the cell into the dendrons.

"The next idea which it is necessary to grasp is, that each nerve unit (cell plus branches of both kinds) is anatomically independent of every other nerve unit. There is no anastomosis of the branches from one nerve cell with those of another; the arborizations interlace and intermingle, and nerve impulses are transmitted from one nerve unit to another, but not by continuous structures. The impulses are transmitted through contiguous, but not through continuous, structures. A convenient expression for the intermingling of arborizations is *synapse* (literally, a clasp)."²¹ The axis-cylinder process, or axon, was originally supposed to be unbranched, but Golgi's chromate of silver method, by means of which the nerve fibrils may be followed to their finest ramifications, has demonstrated that this view was erroneous, and that lateral branches invariably pass from the axon into the adjacent nerve tissue. These branches are known as *collaterals*.

³²² *Plexus and Network* (Fig. 1132, p. 748).—I employ the phrase *terminal network* as the literal translation of the German word *Endnetz*, which is used by the author in the original. It is, however, a moot point whether this terminal ramification of the sensory nerves of the cornea is a true *network* or merely a *plexus*. The fact that the slender filaments exhibit no varicosities at their points of junction suggests rather the latter conclusion. The distinction between a *nervous network* and a *nervous plexus* is explained by Quain in the following terms ("Anatomy," 10th ed., vol. i, part ii, p. 347): "In the former an actual fusion of the ultimate fibrillae which result from the division of the axis-cylinders of the nerves is assumed to take place, whereas in the latter, although there may appear to be an intimate union between the different nerves which enter into the plexus, this union does not extend to the ultimate elements of the nerve fibre; in other words, although fibres or parts of fibres (fibrils) may be given and received by the several nerves to and from one another, these fibres (in the case of the larger plexuses) or fibrils (in the microscopic plexuses) remain completely distinct, although they may run in close juxtaposition. Nervous plexuses are of very common occurrence, both those of the larger sort which have long been recognised by anatomists, and the smaller microscopic plexuses which are often found near the endings, both of some centripetally conducting and of some centrifugally conducting nerves. But nervous networks are far less frequent than has been supposed, although they were until lately described as a mode of nerve termination not by any means rare; and, indeed, their existence is now doubted altogether by some histologists."

³²³ *Free Ends of Corneal Nerves* (Fig. 1133, p. 748).—It is a disputed point whether sensory nerve terminals ever actually penetrate the cells of the tissue to which they are distributed. In his description of Fig. 1133, the author shelves the question by stating that "the nerve fibrils end freely in the epithelium" (*freie Endigung der Nervenfibrillen im Epithel*), which may signify either between the cells of the epithelium or in the interior of these cells. Concerning this matter Quain writes (*op. cit.*, vol. iii., part iii., p. 23): "An actual connexion of these nerves with the corpuscles of the cornea probably never occurs; although, since the fine nerve fibrils run in the anastomosing cell spaces, they come into close connexion with the corpuscles and their processes, and they have therefore been described by some observers as being actually continuous with the latter." (The passage as written is, unfortunately, to some degree ambiguous, owing to the repetition of the word *connexion* in a changed sense; it is obvious, however, that in the second instance *contact* is denoted.)

³²⁴ *Touch Corpuscles* (Fig. 1134, p. 749).—Also known as *tactile corpuscles* (*corpuscula tactis*) or *touch bodies*. In Germany they are distinguished as *Meissner'sche Tastkörperchen*, Meissner, with Thomas Wagner, having been their discoverer.

³²⁵ *Paciniian Corpuscles* (Fig. 1137, p. 749).—Called also *Pacini bodies*, and sometimes *corpuscles of Vater*. They were described by Vater in 1741; but their internal structure and their necessary connexion with nerve fibres was first demonstrated, at a much later date, by Pacini.

³²⁶ *Henle's Sheath* (Figs. 1134 to 1137, p. 749).—This sheath is not mentioned by the author. It is derived from the *perineurium* (see note ³²⁰ above), which accompanies the nerves as they subdivide, and ultimately, in the finest branches, becomes reduced to a single lamella of connective tissue, covered within and without by a pavement epithelium (*endothelium*). Its importance in this connexion depends on the fact that the nucleated connective-tissue capsules of all the tactile end-organs are con-

tinuous with and derived from the sheath of Henle. A prolongation of this sheath passes over the motorial end-organs, also forming a nucleated covering called by Kühne the *telolemma* (*epilemma* according to Macalister); further, the *neurilemma* or *sheath of Schwann* being continuous with the sarcolemma, the motorial end-organ has a second covering within that derived from the sheath of Henle; this is sometimes called the *endolamella*.

³²⁷ *Olivary Body* (Figs. 1141, 1143, p. 752).—This is called by Quain the *lower olive*. As far as human descriptive anatomy is concerned, the qualification is perhaps superfluous, the *superior olivary nucleus*, from which it is thus distinguished, being situated in man deep within the substance of the pons Varolii, and not giving rise to any superficial prominence similar to that from which the *lower olive* derives its name. In their internal structure, however, and in the size of their cells, the *superior* and the *inferior olive* exhibit, even in man, close resemblances; and in some animals, in which the superior olivary nucleus is proportionately much larger than in the case of the human brain, the outline of this body is distinctly sinuous, a fact which makes the similarity to the *corpus dentatum* of the inferior olive even more striking.

³²⁸ *Pyramids* (Fig. 1141, p. 752).—These are sometimes called the *anterior pyramids* to distinguish them from the *posterior pyramids*, an alternative name (seldom employed) for the *funicular graciles* with their *clavae*.

³²⁹ *Enlargements of the Spinal Cord* (Figs. 1141, 1142, p. 752).—These are variously named (1) *cervical and lumbar*, from the regions of the cord in which they are respectively situated; (2) *brachial* and *crural*, from the functions they respectively subserve; and (3) *upper and lower*, from their relative position. The names first mentioned are those in general use.

³³⁰ *White Columns of the Spinal Cord* (Figs. 1141 to 1143, p. 752).—The posterior grey column (posterior horn—see note ³²⁹ below) almost reaches the surface of the cord along the postero-lateral groove (see note ³³ below) and the line of attachment of the posterior root, thus distinctly separating the *posterior white column* from the rest of the cord; the anterior extremity of the anterior grey column (anterior horn), on the other hand, is some distance from the surface, and the bundles of the anterior nerve roots do not emerge along a defined vertical line, so that there is no distinct boundary between the *anterior* and the *lateral white column*. For this reason many anatomists divide the white matter of the cord into *posterior* and *anterolateral white columns* only.

³³¹ *Medulla Oblongata* (Fig. 1142, p. 752).—Quain gives *spinal bulb* as an alternative name, but the term is not in use; it is a translation of the Latin *bulbus rhachiticus*, a name used by Meckel.

³³² *Posterior Median Groove* (Figs. 1141, 1142, p. 752).—It will be noticed that the author speaks of the *sulcus medianus posterior* in contradistinction to the *fissura mediana anterior*. In England the terms *anterior* and *posterior median fissure* are in common use. The author's terminology is, however, to be preferred, for the anterior cleft only, though much shallower than the posterior, is a true fissure, both sides of which are lined with pia mater. Along the posterior median line of the cord is a shallow groove merely, the *posterior median groove*, from the bottom of which a cleft extends inwards nearly to the centre of the cord. This cleft is occupied, not by the pia mater, but by a thin stratum of connective tissue and bloodvessels connected with that membrane, known as the *posterior median septum* (see Fig. 1149, p. 755).

³³³ (Fig. 1143, p. 752.) The terms *pars cervicalis*, *pars thoracalis*, and *pars lumbalis* (*cervical*, *dorsal*, and *lumbar* portions of the cord), as used by the author, refer to the divisions of the cord occupying respectively the cervical, dorsal, and lumbar portions of the spinal canal, and have no bearing on the *functional* divisions of the cord, represented by the *cervical* or *brachial* and *lumbar* or *crural* enlargements, and the intermediate *dorsal* portion of the cord (see note ³³⁹ above).

³³⁴ *Medulla Spinalis*.—The term *spinal marrow*, a literal translation of the Latin term *medulla spinalis*, is still found in the textbooks as an alternative name for the *spinal cord*.

³³⁵ *Sulcus Lateralis Anterior et Posterior*; *Sulcus Intermedius Anterior et Posterior* (Figs. 1144 and 1145, p. 753).—"An antero-lateral groove has sometimes been described in the line of origin of the anterior roots of the nerves, but usually has no real existence. The fibres of these roots, in fact, unlike the posterior, do not dip into the spinal cord in one narrow line, but spread over a space of some breadth" (Quain, *op. cit.*, vol. iii., part i., p. 7). The *postero-lateral groove*, on the other hand, is a clearly marked furrow corresponding with the line of attachment on each side of the posterior roots of the spinal nerves. (See also note ³³⁹ above.) In the upper part of the cord a furrow is seen on either side about 1 millimetre from the posterior median groove (see note ³³³ above); this, which is better marked in some individuals than in others, is known as the *posterior intermediate groove* (or *furrow*); it serves, in the cervical region, to mark off the *postero-mesial* from the *postero-lateral* column (see note ³⁴³ below); from the bottom of the groove an incomplete septum of connective tissues analogous to the posterior median septum, and known as the *posterior intermediate septum*, extends into the substance of the cord between the columns just named (see Fig. 1149, p. 755). An *anterior intermediate groove* (or *furrow*), *sulcus intermedius anterior*, is shown in Fig. 1144 as a variety.

³³⁶ *Fossa Rhomboidea* (Fig. 1145, p. 753).—According to Quain, this (or, strictly speaking, the term *fossa rhomboidalis*—see note ³³⁵ below) is an alternative name for the *fourth ventricle*, but by the author its signification is limited to the floor of that cavity. The part of the ventricle seen in Fig. 1145, viz., its pointed lower extremity, is known as the *calamus scriptorius*, on account of its resemblance to a writing-pen. (See also Fig. 1178, p. 768.)

³³⁷ *Tuberculum Cuneatum* (*Ibid.*).—"On a level with the adjoining clava of the *funiculus gracilis*, the enlarged part of the cuneate funiculus also, like that, exhibits a slight eminence, which is best marked in children, and has been called the *cuneate tubercle*" (Schwalbe, quoted by Quain, *op. cit.*, vol. iii. part i., p. 44).

³³⁸* *Terminal Ventricle* (Fig. 1146, p. 753).—"At the apex of the *conus medullaris* the central canal of the cord is considerably enlarged, to form what is known as the *ventriculus terminalis*, and below this, narrowing once more, it may be traced for some distance in the interior of the *filum terminale*" (Von Langer and Toldt's "Anatomy," 7th ed., p. 584). This term is not used by Quain or Macalister.

³³⁹ *Grey Columns of the Spinal Cord* (Fig. 1147, p. 754).—It is to some extent an innovation in English anatomical nomenclature to employ the term *column* in speaking of the grey matter. The author, it will be noted, distinguishes the *white columns* as *funiculi* from the *grey columns*, which he terms *columns*. In England the grey matter of the spinal cord is, as a rule, divided into three *horns*—*anterior* or *ventral*, *posterior* or *dorsal*, and *lateral* *horn*—on each side. Now, while this terminology expresses

accurately enough the appearance of the grey matter of the cord as seen in transverse section, it fails entirely to represent its tridimensional aspect, for which purpose the use of the term *column* is obviously the most appropriate. The word is already in common use for one section of the grey matter, viz., the *posterior vesicular column* of Lockhart Clarke (commonly spoken of as *Clarke's column*); Quain, further, as well as other authorities, speaks of various longitudinal tracts of grey matter rich in cells as *ganglionic* or *cell columns*; so that there is no valid objection to the substitution of the more accurate term, *columns*, for the more familiar term, *horns*, of the grey matter. Any possible confusion between the white and the grey columns of the respective anterior, lateral, and posterior regions of the cord can be avoided by the invariable addition of the qualifying adjective *white* or *grey* as the case may be. The alternative reform in the nomenclature, the adoption of the author's term *funiculus* in speaking of the white columns, appears to me to be a less desirable one, and less likely to be accepted.

³⁴⁰ *Veins of the Spinal Cord* (Fig. 1148, p. 754).—According to Quain, two median longitudinal veins, anterior and posterior, are the most important veins of the spinal cord. Von Langer and Toldt (whose nomenclature I have in this instance adopted) write as follows: "The veins of the spinal cord fall into two groups: the *external spinal veins*, *vene spinales externae anteriores et posteriores*, which accompany the arteries in front and behind the cord; and the *internal spinal veins*, *vene spiniales internæ*, which run in the substance of the cord beside the central canal; radiating branches connect these two systems of veins, and pass outwards to the *internal vertebral venous plexuses*, *plexus venosi vertebralis interni*" (*op. cit.*, p. 599).

³⁴¹ *Commissures of the Cord* (Figs. 1149 and 1150, p. 755).—The *commissure of the cord*, says Gowers, "consists of two parts: an *anterior* or *white* and a *posterior* or *grey commissure*" ("Diseases of the Nervous System," 2nd ed., vol. i., p. 184). A similar account is given by most English anatomists. The *posterior* or *grey commissure*, as its name implies, consists, like the *anterior* or *white commissure*, of connecting fibres, but in the case of the former there is a large amount of neuroglia amongst the fibres, and this gives the commissure a grey aspect. Toldt, as Fig. 1149 shows, divides the commissure of the cord into three parts: a *posterior commissure*, an *anterior grey commissure*, and an *anterior white commissure*. This difference depends merely on the fact that, while English anatomists describe the central canal of the spinal cord as being situated in the centre of the *posterior* or *grey commissure*, Toldt regards the fibres behind that canal as forming the *posterior commissure*, while the portion of the *grey commissure* in front of the canal he calls the *anterior grey commissure*; and in front of this, again, is situated the *anterior white commissure*.

³⁴² *Collateral Fibres of the Posterior Roots* (Fig. 1150, p. 755).—Recent researches have shown that the fibres of the posterior roots bifurcate as they enter the cord into two principal branches which ascend or descend respectively in the *posterior white column* or the adjacent part of the *posterior grey column* (*posterior horn*—see note ³³⁹ above). From these branches, as well as from the root fibre before it bifurcates, numerous *collaterals* (see note ³³¹ above) are given off in four principal directions: (1) to the *anterior grey column* (*anterior horn*) of the same side, (2) by the *posterior commissure* to the grey matter of the opposite side, (3) to the *lateral grey column* (*lateral horn*), (4) to the *posterior grey column* (*posterior horn*) of the same side, especially to the *substantia gelatinosa* of Rolando, the solitary cells, and to the *posterior vesicular column*

of Lockhart Clarke (the last-named are the fibres shown in Fig. 1150). Ultimately these collaterals divide frequently to form a ramification of nerve fibrils intimately associated with the nerve cells of the grey matter. The bifurcation of the posterior root fibre and the offset of the collaterals is shown diagrammatically in Fig. 1140, p. 750.

³³ *Dorsal Nucleus* (*Ibid.*).—The *posterior vesicular column* of Lockhart Clarke was called by Stilling the *nucleus dorsalis*, and by Macalister the *visceral column*.

³⁴ *Direct Lateral Cerebellar Tract* (*Ibid.*).—This tract, called by the author *fasciculus cerebellospinalis*, is somewhat variously named by English authorities. Foster calls it simply the *cerebellar tract*; but this name is inadequate, as other tracts in the cord are connected with the cerebellum. Gowers calls it the *direct cerebellar tract*; Halliburton, the *dorsal or direct cerebellar tract*; Quain, finally, employs the precise but cumbersome name, *dorsolateral ascending cerebellar tract*. I believe, however, that Flechsig's name, *direct lateral cerebellar tract*, is that generally employed, and as it is sufficiently distinctive and at the same time fairly concise, I have adopted this name in the text.

³⁵ *Septum Posticum of the Subarachnoid Space of the Spinal Cord* (*Ibid.*).—For an account of this structure, which is called by the author the *septum subarachnoidale*, see Quain, *op. cit.*, vol. iii., part i., p. 188.

³⁶ *Anterolateral Ascending Tract* (Fig. 1151, p. 756).—The author's name for this is *fasciculus anterolateralis superficialis*, with an alternative German name of *Gowers'scher Strang*—i.e., tract of *Gowers*. Quain calls it the *ventrolateral* or *anterolateral ascending cerebellar tract*. Halliburton gives both the names used in the text, as alternatives to *ventral cerebellar tract*, to which latter he gives the first place. Foster calls it the *anterolateral ascending tract*. It is hardly correct to qualify it, as Quain does, as *cerebellar*, for many of the fibres of the tract terminate, not in the cerebellum, but in the corpora quadrigemina. The truly cerebellar portions of this tract may, however, as Foster suggests, be regarded as "simply a more diffuse and outlying part of the [direct lateral] cerebellar tract" (*op. cit.*, p. 895).

³⁷ *Lateral and Anterior Ground Fibres of Flechsig and Lateral Limiting Layer* (*Ibid.*).—The lateral and the anterior ground fibres (*fasciculi lateralis et anterior proprii Flechsigi*) consist of the fibres which are subject to neither ascending nor descending degeneration as a result of experimental or accidental section of the spinal cord; this region, which in section has the form of a crescentic strip of white matter surrounding the front of the posterior horn, the lateral horn, and the anterior horn of the cord, is supposed to be made up of commissural fibres "connecting the segmental mechanisms of the same lateral half of the spinal cord with each other" (Foster). Gowers describes the hindmost portion of the *lateral ground fibres*, that which intervenes between the front of the lateral or crossed pyramidal tract and the grey matter, as the *lateral limiting layer*. This separation, however, like that between the *lateral* and the *anterior ground fibres*, is made purely for descriptive purposes, and has no physiological significance, there being no difference as regards structure or development or (as far as our present knowledge goes) function between the fibres of these areas.

³⁸ *Tracts of the Posterior White Column* (*Ibid.*).—This column is chiefly made up of two tracts, the *tract of Goll* and the *tract of Burdach*, which are separated from one another by the posterior intermediate septum (see note ³³⁵ above). In the author's nomenclature they are known respectively as the *fasciculus gracilis* and the *fasciculus cuneatus*, the former being continued into the *funiculus gracilis*, and the latter into the *funiculus cuneatus*,

of the medulla oblongata. Quain calls them *posterosmesial* and *posteroventral columns*, as alternative names to *tract of Goll* and *tract of Burdach*. They are often known in England as *column of Goll* and *column of Burdach*, but the name *tract* is to be preferred, as harmonizing with the nomenclature of the other tracts which have been differentiated in the cord by physiological research.

³⁹ *Classification of the Nerve Cells of the Spinal Cord* (Fig. 1152, p. 756).—I quote from Von Langer and Toldt's "Anatomy" (7th ed., pp. 588, 589) a passage which explains the names given to the nerve cells in Fig. 1152: "We may distinguish in the spinal cord three varieties of nerve cells [ganglion cells], the differential characteristic being the destination of their nerve processes. (1) The *motor cells* of the anterior grey columns [or anterior horns—see note ³³⁹ above] whose axis-cylinder processes [axons—see note ³²¹ above] are directly continued into motor nerve fibres, and as such constitute the anterior nerve roots. (2) The *tract cells* [*Strangzellen*], whose nerve processes pass into the white matter, in which they run for a space, giving off collaterals [see note ³²¹ above] at intervals; sooner or later they, and their collaterals also, re-enter the grey matter, and there break up into terminal arborizations (*Endbäumchen*)—[the individual fine twigs of the arborizations are called *dendrites*: see note ³²¹ above]. These cells are especially numerous in the region between the anterior and posterior horns. Those tract cells whose processes cross the median plane in the anterior or white commissure of the cord are distinguished as *commissural cells*. (3) The *intercalary cells* [*Binnenzellen*, *Schaltzellen*], which are much fewer in number than the cells belonging to the other two varieties; their nerve processes do not enter the white substance, but divide within the grey matter into very fine fibrils [dendrites]. They are most numerous in the posterior grey columns [posterior horns]." I have not been able, in the English works at my disposal, to find a classification of the nerve cells of the spinal cord based on the same consideration as that given in the above quotation; hence my rendering of the author's terms *Strangzellen*, and *Binnenzellen* or *Schaltzellen* (for which he gives no Latin equivalents), are neologisms. *Tract cells* is obviously the best rendering of the first, since *Strang* is the German equivalent of the *tract* of the spinal cord of English authors. *Binnenzellen* or *Schaltzellen* I have translated by the words *intercalary cells*, in place of using the more familiar word *intermediate*, in order to avoid confusion with the cells of the *intermediate process of Gowers* (*lateral horn*, or *intermediolateral tract*—see note ³ to p. 754). The term *Binnenzellen* is not used in Fig. 1152, but apparently the term *Golgi'sche Zelle* is used with the same significance (see note ³²⁰ below). In conclusion, I may remind the reader that the usual English classification of the nerve cells of the spinal cord is based, not so much on their structural peculiarities or the destination of their processes, as on their arrangement in columns. The *motor cell column*, or the *cell column of the anterior horn*, is, however, made up entirely of the *motor cells* comprising Toldt's first group; further, the other principal cell columns—viz., *Clarke's column* (see note ³⁴³ above), the *lateral cell column*, the *middle cell column*, and many of the *cells of the posterior grey column*—consist of Toldt's second group of cells, the *tract cells*; finally, the *intercalary cells* of this author would appear to be identical with those generally known in England as the *solitary cells* of the posterior horn, of which Quain writes (*op. cit.*, vol. iii., part i., p. 17): "Some of the axis-cylinder processes of these cells do not leave the grey matter, but are branched, and their ramifications lose themselves in the interlace of fibrils which invests other cells."

³³⁰ **Golgi's Cells* (*Ibid.*).—It was not at first clear to me what cells in particular the author intended to denote by this name. In spite of the fact that so much of our knowledge of the intimate structure of the nervous system is derived from Golgi's work, no structure (except the *corpuscle of Golgi* or *organ of Golgi* found as a sensory nerve terminal in tendons) has hitherto been associated with the name of this investigator, nor is the term *Golgi'sche Zelle* to be found even in Von Langer and Toldt's "Text-book of Anatomy." These authors' classification of multipolar nerve cells serves, however, to throw light on the difficulty. They write (pp. 572, 573): "There are three principal forms of *multipolar* nerve cells [ganglion cells]. In one kind of these—the first type of Golgi—we find among the numerous processes one always which remains unbranched or gives off only a few fine collaterals, and this process, on account of its close resemblance to an axis-cylinder, is known as the *axis-cylinder process* [or *axon*; in German *Nervit*]; after a short course it acquires a medullary sheath, and is thus transformed into a medullated nerve fibre. The other processes resemble undifferentiated protoplasm in appearance, and divide again and again until the ultimate fibrils almost cease to be visible from their extreme tenuity; they are known as *protoplasmic processes* [*dendrons* and *dendrites*]; whether they are connected with nerve fibres is a matter not yet determined. . . . In a second kind of multipolar nerve cells [ganglion cells]—the second type of Golgi—the cell has, in addition to numerous dendrons, like the first kind, one axis-cylinder [axon] only; this last, however, instead of becoming transformed into a long nerve fibre, soon breaks up into an abundant arborization [the German word is *Netz*, literally *network*, but see note ³³² above]; cells of this type are met with in the posterior horns of the spinal cord and in the inner or granule layer of the grey matter of the cortex of the cerebellum. Multipolar nerve cells [ganglion cells] of the third kind are distinguished by the fact that they have no dendrons, all their processes being continuous with nerve fibres; cells of this kind are met with in the ganglia of the sympathetic nervous system." If the data given here regarding the cells said to belong to the "second type of Golgi" be compared with those given in note ³³² above regarding the *intercalary cells* (*Binnenzellen*), and are further taken in conjunction with the fact that the **Golgi's cell* shown in Fig. 1152 is in the posterior horn, and is unconnected with any of the tract fibres, we are led to conclude that the latter is an alternative name used by the author for the *intercalary cells*, and, finally, that these are the same as the *solitary cells* described in the quotation from Quain at the end of note ³³² above.

³³¹ (*Ibid.*) The word *central* in these instances denotes merely "having connexions with the cerebrum," and must on no account be confused with "centripetal." In the case of the axis-cylinder process of the cell of Clarke's column, indeed, the fibre is centripetal, for it passes upwards in the direct lateral cerebellar tract, and if severed degenerates upwards. The (red) fibres passing from the anterior and lateral pyramidal tracts to the motor cell column, however, are centrifugal fibres.

³³² *Reflex Collaterals* (Fig. 1155, p. 757).—I quote the following passage from Von Langer and Toldt, *op. cit.*, p. 593: "Concerning the significance of the sensory (*i.e.*, posterior) root fibres of the spinal cord, there still remains much that is obscure; but all the observations hitherto made support the view that the different connexions of the sensory collaterals represent different physiological activities of the sensory root fibres. We may mention as an especially noteworthy fact that those sensory collaterals which pass into the anterior grey columns (anterior

horns), and there invest the motor cells with terminal arborizations, would appear to be exceedingly well adapted for the direct transmission of sensory stimuli to a smaller or larger number of motor cells, and that in this manner they form the anatomical basis for the carrying out of reflex movements." These collaterals are those called *reflex collaterals* in Fig. 1155.

³³³ **Filum of the Spinal Dura Mater* (Fig. 1157, p. 758).—The *filum terminale*, or *central ligament of the spinal cord*, is a prolongation of the pia mater, enclosing for about half its length an enlarged continuation of the central canal of the cord, with a little grey matter near the upper end. As it perforates the dura mater, opposite the second sacral vertebra, it receives from that membrane a thin fibrous investment, which is called by the author "*filum durae matris spinalis*. The term is not used by Quain or Macalister.

³³⁴ *Metathalamus, Epithalamus, and Hypothalamus* (Fig. 1161, p. 760).—These terms are explained in the following quotation: "In the anterior half of the lateral wall of the *thalamencephalon* [*diencephalon, interbrain, second secondary vesicle*] a hemispherical eminence forms on each side, the *optic thalamus*. In the posterior half of the lateral wall of the *thalamencephalon*, three superimposed regions must be distinguished. The middle of these, lying immediately behind the optic thalamus, the *metathalamus*, develops into the *corpora geniculata*; the region above this, the *epithalamus*, develops into the *pineal body* or *gland* and the *ganglion of the habenula*. The lowest and largest of these three regions unites with a small portion of the *prosencephalon* or *first secondary vesicle* to form the *hypothalamus*. This is definitely marked off from the *thalamus* and the *metathalamus* by the *sulcus hypothalamicus* (*Monroi*), which arches downwards and forwards from the entrance to the aqueduct of Sylvius. The ventral wall of the hypothalamus remains much thinner than the ventral wall of the posterior parts of the brain, and exhibits, in contact with the base of the skull, two acute-angled recesses separated from one another by the optic commissure; the anterior of these is the *optic recess*, and the posterior is the *recess of the infundibulum*. The former is bounded in front by the *lamina cinerea* (*lamina terminalis*, according to Toldt), which, as a constituent of the prosencephalon, is continuous with the wall of the hemispheres. . . . The *hypothalamus* . . . belongs partly to the *prosencephalon*, and partly to the *thalamencephalon*. Thus, the *corpus albicans* and *mamillaria* and part of the *tuber cinereum*, making up the *pars mamillaria hypothalami*, belong to the *thalamencephalon*; whilst the remaining (and greater) portion of the *tuber cinereum*, with the *infundibulum*, and the *posterior lobe* of the *pituitary body* or *hypophysis cerebri*, as well as the *optic commissure* and the *lamina cinerea*, making up the *pars optica hypothalami*, belong to the *prosencephalon*" (Von Langer and Toldt's "Anatomy," 7th ed., pp. 623, 624).

³³⁵ **Rhombocephalon* (Fig. 1163, p. 761).—This term is used by the author to denote the *medulla oblongata*, the *pons Varolii*, the *cerebellum*, and the *isthmus rhombencephali* (see note ³³⁹ below), the solid parts, that is to say, which environ the *fourth ventricle*, the floor of which is known in Germany as *fossa rhomboidea*. (In England *fossa rhomboidalis* is an alternative name, seldom employed, for the fourth ventricle as a whole—see note ³³⁹ above.)

³³⁶ *Flexures of the Developing Brain* (Fig. 1164, p. 762).—These flexures, denoted by Quain simply as *first*, *second*, and *third cerebral flexures*, respectively, have no Latin names in the author's nomenclature. The German names are: for the *first flexure*, beneath the mid-brain, *Scheitelkrümmung*—*i.e.*, *parietal flexure*; for the *second flexure*, in the region of the pons, with the convexity directed forwards (the reverse of the first), *Brückekrümmung*—*i.e.*, *frontal flexure*; for the *third*, at the junction of the medulla

oblongata with the cord, likewise with a ventralwards convexity, *Nackenkrümmung*—i.e., *cervical flexure*.

³⁵⁷ (*Ibid.*)—The fourth and fifth secondary vesicles (*epencephalon* and *metencephalon*, according to Quain) are developed from the posterior primary vesicle or hind-brain. Note that *metencephalon* is used by Toldt in a different sense, signifying not the fifth, but the fourth secondary vesicle.

³⁵⁸ Mid-brain (*Ibid.*).—Whereas the anterior and posterior primary vesicles give rise to two secondary vesicles each (first and second, fourth and fifth, respectively), the middle primary vesicle remains undivided as the third secondary vesicle. From this, the mid-brain or mesencephalon, are developed the aqueduct of Sylvius, the corpora quadrigemina, and the crura cerebri.

³⁵⁹ *Pineal Stria* or *Stria Medullaris* (Fig. 116a, p. 763).—This white stria runs along the upper curved margin of the lateral wall of the third ventricle, from the habenula of the pineal body behind to the anterior pillar of the fornix in front, and separates the inner from the upper surface of the optic thalamus. Owing to its connexion with the fornix, the *pineal stria* is known also as the *tentia fornici*, and this latter name, indeed, is that chiefly used by Quain to denote this structure. The name *tentia fornici* is, however, used by Toldt in a different sense—viz., to signify the line of attachment of the inner layer of the choroid plexus of the lateral ventricle to the outer free margin of the fornix. See Fig. 1203, p. 754, and Fig. 1204, p. 785, also note ³⁶⁰ below.

³⁶⁰ **Hypothalamus* and **Sulcus Hypothalamicus* (*Monro*) (Fig. 1173, p. 764).—The free internal surface of the optic thalamus, which forms the upper part of the lateral wall of the third ventricle, is bounded below by a sulcus which runs forwards from the anterior extremity of the aqueduct of Sylvius to the foramen of Monro. This is known as the *sulcus of Monro* (*sulcus hypothalamicus Monroi*), which is described neither by Quain nor by Macalister, though the latter authority depicts it in Fig. 778, p. 709, of his “Text-book of Human Anatomy.” Von Langer and Toldt call this sulcus alternatively *sulcus limitans ventriculi tertii*—see note ³⁵⁷ below. The parts below the sulcus, forming the floor of the third ventricle, make up together what the author calls the **hypothalamus*. The use of this term in relation to the development of the brain has been already explained in note ³⁵⁴ above. The parts of the adult brain which, according to the Continental terminology, combine to form the hypothalamus are: (1) The *corpora albicantia seu mammillaria*, (2) the *tuber cinereum*, (3) the *pituitary body or hypophysis cerebri*, (4) the *optic commissure or chiasma*, and the *optic tracts*, (5) the *lamina cinerea*. All these structures are shown in Fig. 1173, p. 764, except the *tuber cinereum*, which is depicted in Fig. 1174, p. 765.

³⁶¹ *Infundibulum et Recessus Infundibuli* (*Ibid.*).—The author draws a distinction between the *infundibulum*, the funnel-shaped downwardly projecting process at the base of the brain, behind the optic commissure, to the extremity of which the pituitary body is attached, and the **recess of the infundibulum*, the cavity in the interior of that process, which is part of the third ventricle. Quain and Macalister use the term *infundibulum* indifferently to denote either the process or its cavity.

³⁶² *Posterior Perforated Space and *Anterior and *Posterior Recess* (*Ibid.*).—The *posterior perforated space* (*locus perforatus posterioris*) lies in a deep fossa (*fossa interpeduncularis Tarini*, the *interpeduncular fossa of Tarini*) between the diverging crura cerebri. Yet another name for the triangular space enclosed between the crura at the base of the brain is that used by Schwalbe—*trigonum interpedunculare*. The posterior angle of this triangular fossa is situate in the median line at the anterior

margin of the pons Varolii; this angle is called by Toldt **recessus posterior*. The anterior extremity of the interpeduncular fossa or posterior perforated space, the **recessus anterior of Toldt*, lies immediately behind the *corpora albicantia seu mammillaria*. The terms **anterior* and **posterior recess* are used neither by Quain nor by Macalister. The grey matter forming the floor of the space is called by Toldt *substancia perforata posterior*, and by Macalister the *posterior perforated plate*. The anterior part of this plate forms the posterior part of the floor of the third ventricle; but behind a line joining the anterior borders of the third nerves it forms the floor of the aqueduct of Sylvius.

³⁶³ *Pyramids* (*Ibid.*).—The *pyramids* of the medulla oblongata are sometimes distinguished as the *anterior pyramids*, the *funiculi grisei* with their *clavae* being by some anatomists called the *posterior pyramids*.

³⁶⁴ *Anterior Extremity of the Aqueduct of Sylvius* (*Ibid.*).—Immediately in front of the posterior commissure, the aqueduct of Sylvius expands abruptly to form the third ventricle. To this expansion the author gives the name *aditus ad aqueductum cerebri*.

³⁶⁵ *The Pineal Body and its Connexions* (*Ibid.*).—As the accounts of the connexions of the pineal body or gland (*conarium, epiphysis cerebri*) given by Von Langer and Toldt, Quain, and Macalister, respectively, differ considerably, and this not merely in terminology, it is necessary, in order that the denotation of the terms used in Fig. 1173, p. 764, and in some later figures, may be clearly understood, to quote from the works of these authors. According to Von Langer and Toldt (*op. cit.*, p. 630), “The *pineal body* (*corpus pineale*) . . . is developed from the *epiphysis cerebri* [see Fig. 1161, p. 760, and note ³⁵⁴ above] . . . it projects freely from the roof of the mid-brain, between the upper or anterior pair of corpora quadrigemina, and is connected with these by a thin layer of white substance, which extends forwards from the base of the pineal body, and then curves downwards to become directly continuous with the quadrigeminal lamina; this layer of white substance forms the *posterior commissure* of the third ventricle. Above this there extends forward from the base of the pineal body an extremely thin layer of grey substance, the *commissura habenularum*, which extends on either side into a thin stria, the *peduncle of the pineal body or habenula*; and the habenula is further attached on both sides to the back of the optic thalamus by the intermedium of a triangular expansion, the *trigonum habenulae*, and of this last the *pineal stria* (*stria medullaris thalami*) [see note ³⁵⁹ above] is a direct forward continuation. Between the upper grey and the lower white medullary layer proceeding forwards from the base of the pineal body is a narrow pointed backward extension of the third ventricle, the *pineal recess* (*recessus pinealis*). . . . The *velum interpositum* or *tela choroidea superior* forms the upper boundary, and the anterior half of the upper surface of the pineal body forms the lower boundary, of another pointed backward extension of the third ventricle, the *suprapineal recess* (*recessus suprapinealis*).” According to Quain (*op. cit.*, vol. iii., part i., p. 114), “the *pineal body* . . . is attached on each side by a broad and flattened stalk of white fibres (*pedunculus conarii*) which is separated by the pineal recess of the ventricle into a dorsal and a ventral portion. The ventral portion curves downwards; it belongs to the ventral portion of the posterior commissure. . . . The upper portion extends on each side along the ridge-like junction of the upper and mesial surfaces of the thalamus as the pineal stria or *tentia fornici* [see note ³⁵⁹ above]. At the sides the stalk merges into the *trigonum habenulae*.” The term *habenula* is not employed by Quain in this passage, but elsewhere (p. 111) he mentions it as

an alternative name for the *peduncle of the pineal body*. Though this author describes the peduncle as consisting of white fibres, the middle of what he calls the *dorsal portion* of the habenula is identical with the *thin grey layer* constituting the *commissura habenularum* of Von Langer and Toldt. According to Macalister (*op. cit.*, p. 720), "On the inner side of each optic thalamus is a white streak, the *crus pinealis*, outside which is a grey band, the *habenula of the pineal body*, passing from the *ganglion habenula* or *trigonum habenula*; beginning below and in front, and coursing backwards along its upper and inner angle, to end by joining with a white band, the *transverse frenulum of the pineal body*. The junction between the habenula and frenulum is dilated into a small triangular knob, the *trigonum habenula*. Below and attached to this is a transverse white band, the *posterior commissure*, in reality a foremost portion of the mid-brain." Thus, Macalister extends the significance of the term *crus pinealis* to include the *finale stria* (*stria medullaris thalami*—see note ²⁸⁹ above). The *commissura habenularum* of Toldt is the *transverse frenulum of the pineal body* of Macalister, which the latter anatomist, in agreement with Quain, describes as a *white band*. Macalister is peculiar in identifying the *ganglion habenula* and the *trigonum habenula*, the former term having been applied by Meynert to a collection of nerve cells in the interior of the latter. With regard to the biological significance of the structures above described, Macalister remarks (*op. cit.*, *loc. cit.*): "These habenal bands are possibly the remains of the optic nerve of the rudimentary median eye coming from the front of the optic thalamus and passing backwards to the pineal body." On p. 722 he writes: "The base of the pineal body is attached by a short stalk to a transverse white band or frenulum above the posterior commissure. . . . The pineal body is a rudiment of a median parietal eye, which probably at one time in ontogeny reached the surface. It is proportionally much larger in the fetus than in the adult."

²⁸⁶ **Fastigium* (*Ibid.*).—This name is given by the author to the angular recess in the roof of the fourth ventricle, between the valve of Vieussens (superior medullary velum) and the inferior medullary velum. The apex of the recess is directed towards the medullary centre of the womb, and in that centre, adjacent to the fastigium on either side of the middle line, is a small collection of grey matter known as the *nucleus of the roof* or *nucleus fastigii*, one of the nuclei of the white matter of the cerebellum (see Fig. 1187, p. 772, and Fig. 1188, p. 773). Although the term *nucleus fastigii* is used both by Quain and Macalister, neither of these authorities employs the term *fastigium*. Quain speaks of it as the *tent of the fourth ventricle*.

²⁸⁷ *Gyrus Rectus* (Fig. 1174, p. 765).—This name, or its English equivalent *straight gyrus*, is sometimes given to the inner part of the *inner orbital gyrus*, between the olfactory sulcus and the mesial border of the orbital surface of the frontal lobe.

²⁸⁸ *Middle or Grey Root of the Olfactory Tract* (*Ibid.*).—According to Quain (*op. cit.*, vol. iii., part i., p. 159), "the *olfactory tract* . . . bifurcates posteriorly into two roots, *mesial* and *lateral*, which diverge as they pass backwards and enclose . . . a space, the *trigonum olfactorum*, which is also known as the *middle* or *grey root* of the *tract*." The term *stria olfactoria intermedia*, used by Toldt to denote the *middle* or *grey root* of the *olfactory tract*, is, however, distinguished by him from the *trigonum olfactorum* (see Fig. 1174, p. 765). "It is very short and often very ill-defined; and it passes directly backwards to the anterior perforated lamina" (Von Langer and Toldt, *op. cit.*, p. 639). The middle root, in fact, occupies the central portion of the *trigonum olfactorum*.

²⁸⁹ *Isthmus Rhombencephali*, etc. (Fig. 1175, p. 766).—I quote from Von Langer and Toldt's "Anatomy" (pp. 618, 619) the following passage, in order to throw light on certain differences between the author's nomenclature and that usual in England. (The significance of the term *rhombencephalon* has already been explained in note ²⁸⁵ above.) "The *isthmus rhombencephali* constitutes the uppermost, most constricted portion of the rhombencephalon, serving to connect it with the mid-brain and the cerebrum." The *dorsal surface* of this isthmus, consisting of the *brachia conjunctiva* (*superior peduncles of the cerebellum, crura cerebelli ad cerebrum*), with the *velum medullare anterius* (*superior medullary velum*, or *valve of Vieussens*) between them, and the *frenulum veli* which passes forwards from the velum to the *sulcus longitudinalis seu sagittalis* of the quadrigeminal lamina, are then described, and the authors proceed: "On the *lateral surface* of the isthmus we observe a circumscribed triangular area, which exhibits a fasciculus of fibres passing on each side from the interior of the cerebral peduncle, then bending upwards on the outer surface of the superior peduncle of the cerebellum to reach the quadrigeminal lamina. This is the *trigonum lemnisci*. The triangle is separated below from the *crus cerebi* by a well-marked furrow, the *sulcus lateralis mesencephali*; it is bounded in front by the lower (or *posterior*) *brachium* of the quadrigeminal bodies; behind it is separated from the outer margin of the superior peduncle of the cerebellum by a shallow groove passing obliquely backwards and downwards towards the *pons Varolii*. The fasciculus of fibres which comes to the surface in the triangle just described is known as the *fillet or lemniscus*. The *basal surface* of the *isthmus rhombencephali* consists of the parts forming the floor of the upper end of the fourth ventricle." The above fully explains the author's use of the term *isthmus rhombencephali* (Fig. 1161, p. 760, and Fig. 1162, p. 761); embryologically this corresponds to the *isthmus of His*, the constriction between the third and fourth cerebral vesicles (Quain, *op. cit.*, vol. i., part i., p. 67). The term *isthmus encephali* is used by Quain in a different sense to denote the mid-brain itself (*op. cit.*, vol. iii., part i., p. 38). As regards the *trigonum lemnisci* (*triangle of the fillet), this term is not used by Quain or Macalister, though the area in question is minutely described by the former authority. The fillet, he writes (*op. cit.*, vol. iii., part i., p. 103), "is seen on the surface as a band of obliquely curved fibres, occupying a triangular area at the side of the tegmentum, and it was to this band that the name of *fillet* was originally applied by Reil. It is now known as the *lower or lateral fillet*." The *sulcus lateralis mesencephali* is known in England either by that name or by its English equivalent *lateral groove*; it indicates the outer limit of the crusta of the cerebral peduncle and the line along which the substantia nigra comes to the surface on the outer side, just as the *oculomotor groove* indicates the inner limit of the crusta (marking it off from the posterior perforated space) and the line along which the substantia nigra comes to the surface on the inner side.

²⁹⁰ **Tenia Chorioidea* (Fig. 1176, p. 767).—This name is given by the author to the line of attachment of the *outer layer* of the choroid plexus of the lateral ventricle, here running parallel with and adjacent to the *stria terminalis* or *tenia semicircularis*. See note ¹ to p. 784, and note ²⁹² below.—It will be noted that in the official German nomenclature the term *chorioidea* retain a syllable that has been lost in the English equivalent *choroid*. The former spelling is etymologically more correct, the words being derived from the Greek χόρων, a membrane.

²⁹¹ (*Ibid.*) *Middle* of the *upper* or *dorsal* portion of the *pedunc-*

culus conavii or *habenula* (Quain), or *transverse frenulum of the pineal body* (Macalister). See note ³⁶⁵ above.

³⁷² (Ibid.) The superior or anterior pair of corpora quadrigemina or optic lobes were termed *nates* by Vesalius, the inferior or posterior pair being called *testes*, but these names are now rarely used.

³⁷³ (Ibid.) These apertures in the epithelial roof of the lateral recess of the fourth ventricle are described by Quain, who does not, however, give them any distinctive name; Macalister calls them the *foramina of Key and Retzius* or *foramina of Mierzejewsky*.

³⁷⁴ (Fig. 1177, p. 767.) "The epithelial layer of the roof of the ventricle follows all the convolutions of the choroid plexuses, but is nowhere pierced by them; it is generally described as the *epithelium of the plexuses*" (Quain, *op. cit.*, vol. iii., part i., p. 50).

³⁷⁵ *Stratum Nucleare* (Ibid.).—This term is not used by Quain or Macalister, nor even is it to be found in Von Langer and Toldt's "Anatomy." Apparently it denotes the tract of grey matter in which the nuclei of the lower cranial nerves are situated, this tract being in the situation indicated in Fig. 1177.

³⁷⁶ *Funiculus Teres* and **Facial Eminence (Eminentia Teres)* (Figs. 1178, 1179, p. 768).—On either side of the median groove in the floor of the fourth ventricle is an eminence, called by Toldt *eminentia mediales*, extending from one extremity of the ventricle to the other. In England it is variously known as the *funiculus teres*, *fasciculus teres*, and *eminencia teres*. "In the upper half of the floor of the ventricle there may be seen, on the inner side of the superior fovea, a rounded elevation of the fasciculus teres, produced by the nucleus of the sixth nerve, with the deep part of the facial arching round it" (Ellis, "Demonstrations of Anatomy," 10th ed., p. 234). "Just above the auditory striae, the eminentia mediales widens out to form a flattened tubercle, characterized also by a somewhat lighter colour than the surrounding portion of the floor of the ventricle; owing to its relation to the root bundles of the facial nerve, this tubercle is called the **facial eminence (*colliculus facialis)*" (Von Langer and Toldt, *op. cit.*, p. 620). Thus, while Ellis gives no name at all to the eminence under consideration, Von Langer and Toldt give one that can hardly be considered appropriate; for, though it is true that the inner genu of the facial nerve gives rise to its projection, it is not the *facial* but the *abducens* nucleus that lies beneath it, and the name of **facial eminence* is not in harmony with the names *auditory tubercle*, *trigonum hypoglossi*, etc., given to other parts of the floor of the fourth ventricle. I would suggest, therefore, that the name of *eminencia teres* should no longer be used as a synonym for the *funiculus* or *fasciculus teres*, but should be reserved to denote that part only of the latter beneath which lies the nucleus of the sixth nerve and the inner genu of the facial nerve. Thus, *eminencia teres* would be the English equivalent of the *colliculus facialis* of the Continental nomenclature. In the last edition of Quain's "Anatomy" the term is used with this significance: "Between the superior fovea and the median sulcus is the prolongation of the funiculus teres, which is prominent (*eminencia teres*) opposite the fovea, but becomes gradually less so above and below" (*op. cit.*, vol. iii., part i., pp. 50, 51).

³⁷⁷ **Limiting Sulci* (Fig. 1179, p. 768).—Concerning the limiting sulci in general, Von Langer and Toldt write as follows (*op. cit.*, pp. 602, 603): "In addition to the longitudinal segmentation of the brain by means of transverse furrows . . . we recognise in the embryonic brain also a *ventral* and *dorsal* segmentation. The boundaries between the ventral and dorsal segments consist of right and left lateral longitudinal furrows, the *sulci limitantes*, which extend through all the six principal subdivisions of the

brain, and are still clearly recognisable in the adult brain. The significance of this ventrodorsal segmentation lies in the fact that from the respective ventral and dorsal portions of the individual secondary cerebral vesicles quite distinct portions of the brain are developed; and in particular it is to be noticed that in the ventral segments the nuclei of origin of all the motor cranial nerves arise—in the dorsal segments, on the other hand, the nuclei of origin of all the sensory cranial nerves. In this fact we find an important homology between the brain and the spinal cord." As regards the **limiting sulci of the floor of the fourth ventricle* in particular (see Fig. 1179, p. 758, and Fig. 1210, p. 787), the same authors write (*op. cit.*, p. 621): "We must also mention the *sulci limitantes fossae rhomboidice*; these are two longitudinally disposed **limiting sulci* which separate the parts developed from the ventral portion of the embryonic **rhombencephalon* (see note ³⁶⁶ above) from the parts developed from the dorsal portion of the same. Passing upwards from the *calamus scriptorius*, the limiting groove lies on either side between the *trigonum hypoglossi* and the *ala cinerea*; above this the **limiting sulcus* is represented by the *inferior fovea*, and it proceeds thence upwards along the inner border of the *trigonum acustici* or *auditory triangle*, its course being somewhat curved, with the concavity towards the median line, to pass into the *superior fovea*; thence upwards it extends along the outer border of the *eminencia teres* as far as the *aqueuct of Sylvius*." The *sulcus of Monro*, *sulcus hypothalamicus Monroi* (see Fig. 1173, p. 764, and note ³⁶⁹ above), is another sulcus of this group, being given by Von Langer and Toldt the alternative name of *sulcus limitans ventriculi tertii*.

³⁷⁸ **Nucleus of the Optic Nerve* (Fig. 1180, p. 769).—This term is not used by Quain or Macalister. The author here applies it to the *grey matter of the external geniculate body*, and Von Langer and Toldt write (*op. cit.*, p. 648): "The light-perceiving fibres of the optic nerve for the most part pass into the external geniculate body, and in part also into the upper quadrigeminal body. The grey nuclei of these bodies are therefore to be regarded as the *nuclei* of the optic nerve." The appropriateness of the term must, however, be questioned, in the light of the most recent observations. Gowers writes on this point ("Diseases of the Nervous System," 2nd ed., vol. ii., p. 54): "Of these intermediate stations [between the fibres of the optic tract and the grey matter of the hemisphere], the external corpus geniculatum has been commonly regarded as that which is of chief importance in connexion with the visual fibres, since its atrophy has been frequently observed in cases of long-standing atrophy of the tract. But many recent observations establish the fact that disease limited to the posterior extremity of the optic thalamus may cause hemianopia, and it seems doubtful whether the symptom is caused by disease of the external geniculate body. Hence we must regard the pulvinar as the intermediate visual centre, and the precise function of the corpus geniculatum becomes again mysterious."

³⁷⁹ The *motor nucleus of the glossopharyngeal and pneumogastric nerves* (Fig. 1181) is otherwise known as the *nucleus ambiguus*, or *accessory or efferent vagoglossopharyngeal nucleus* (Fig. 1180). From this nucleus arise the fibres that make up what the author calls the *motor root* of the pneumogastric nerve, the *sensory root* arising from the *principal nucleus* of the same nerves or *nucleus of the ala cinerea*; finally, the *funiculus solitarius* supplies a *spinal root* to the pneumogastric nerve.

³⁸⁰ *Nomenclature of the Parts of the Cerebellum* (Figs. 1182, 1183, p. 770).—Quain's description of the cerebellum is so much fuller and more minute than that of Von Langer and Toldt, that it has

been impossible, in Figs. 1182 to 1189, to incorporate the whole of Quain's terminology (as I have endeavoured to do throughout this English edition of Toldt's Atlas); and in the text of these figures I have for the most part been content to give the established English renderings of the Latin names used in the original. As heretofore, however, Quain's terminology has remained the standard, though a portion only of that author's description is represented in these figures. The three principal omissions in Von Langer and Toldt's description of the cerebellum are: (a) that the fissures and sulci, with the exception of the *great horizontal fissure* and the **transversa fissura* (see note ³⁸³ below) are left unnamed; (b) that while the worm and the hemispheres respectively are divided into segments in the usual manner, the names used by Quain for the lobes, each consisting of a segment of the worm together with the parts of the hemispheres specially related to that segment, are not given by the German author; and (c) that the *slender lobe* (*lobus gracilis*) of the under surface of the hemispheres is entirely omitted from Toldt's description. As far as can be judged from Figs. 1183 and 1185, the *anterior part* of the *slender lobe* (*lobus gracilis anterior*) constitutes the hinder portion of the *lobus biventralis* of the author; while the *posterior part* of the *slender lobe* (*lobus gracilis posterior*) constitutes the anterior portion of the *lobus semilunaris inferior* of the author.

³⁸¹ *Quadrilateral Lobe* (Fig. 1182, p. 770).—According to Quain (*op. cit.*, vol. iii., part i., p. 74), "The combined anterior and posterior crescentic lobes of each hemisphere were formerly termed the *quadrilateral lobe*." In Ellis's "Demonstrations of Anatomy" this lobe is called the *anterior* or *quadrate lobe*. Macalister terms its subdivisions the *anterior* and *posterior lunated lobules*. Kölliker called them *lobus lunatus anterior et posterior*.

³⁸² *Central Lobe* and *Central Lobule* (*Ibid.*).—It would be better to use the name *central lobule* to denote the part of the worm situated between the lingula and the culmen, and to reserve the name *central lobe* for the lobule and its two *aiae* considered as a whole. See also note ³⁸⁰ above.

³⁸³ *Transverse Fissure of the Cerebellum* (Fig. 1184, p. 771).—"The grey cortex of the cerebellum, considered as a whole, has the form of a shell, open in front, and receiving into its interior, by means of this anterior, transversely-disposed opening (**fissura transversa cerebelli*), the three pairs of cerebellar peduncles" (Von Langer and Toldt, *op. cit.*, p. 615). This so-called *transverse fissure* is, however, simply the anterior part of the *great horizontal fissure*, which, to quote Macalister (*op. cit.*, p. 727), "widens towards the pons, where it receives the crus [crura] cerebelli."

³⁸⁴ **Capsule of the Dentate Nucleus* (Fig. 1187, p. 772).—According to Quain (*op. cit.*, vol. iii., part i., p. 83), "The dentate nucleus may be described as consisting of a plicated pouch or capsule of grey substance, open at one part and enclosing white matter in its interior, like the dentate nucleus of the lower olfactory body." Toldt, however, uses the word *capsule*, not to denote the corrugated grey lamella of the dentate nucleus, but in the sense explained in the following quotation (Von Langer and Toldt) *op. cit.*, p. 613): "The white medullary substance which immediately envelops the *nucleus dentatus* consists of thick medullated nerve fibres, which on all sides enter the grey lamella of the nucleus." These white fibres thus form a *capsule* for the dentate nucleus in the same sense in which the white matter adjacent to the lenticular nucleus of the corpus striatum forms the internal and the external capsule. Cf. also the fibres called by Stilling the *semicircular fibres*, which curve round the corpus dentatum in their passage from the inferior peduncle to the cortex of the cerebellar hemisphere. They are shown in a drawing after Stilling in Quain's "Anatomy," vol. iii., part i., p. 83, Fig. 60.

³⁸⁵ *Nucleus of the Olivary Body* (Figs. 1188, 1189, p. 773).—Toldt calls this *nucleus olivaris inferior*, and in England also it is sometimes distinguished as the *inferior olivary nucleus*. Most frequently, however, it is spoken of as the *olivary nucleus* without qualification, the *accessory olivary nuclei* (Fig. 1239, p. 786) and the *superior olivary nucleus* (Fig. 1211, p. 787) being always carefully distinguished by the use of the qualifying adjective. The nucleus of the lower olive is also known as the *corpus dentatum of the olive*.

³⁸⁶ *Sulci and Gyri of the Outer or Convex Surface of the Occipital Lobe* (Fig. 1192, p. 776).—These are more variable than those of the other lobes, and the matter is further complicated by divergencies in nomenclature, and by a want of agreement as to the anterior boundary of the occipital lobe on the outer or convex surface of the hemisphere. According to Von Langer and Toldt, "this boundary is constituted by a very variable vertically disposed furrow, the *sulcus occipitalis anterior*." This sulcus is not described by Quain, but, as far as can be judged from Fig. 1192 of Toldt's Atlas, it must be regarded as an aberrant, detached, and unusually profound portion of the *anterior occipital sulcus* of Quain, which Toldt (following Ecker) calls the *transverse occipital sulcus*. As regards the *gyri* of the occipital lobe, the old description of three *occipital gyri*—*superior*, *middle*, and *inferior*—has for the most part been abandoned. Toldt describes *superior occipital gyri*, above the *transverse occipital sulcus*, continuous with the *cuneus* of the mesial surface; and *lateral occipital gyri*, below that sulcus, "uniting posteriorly to form the *occipital pole* of the hemisphere" (see Fig. 1194, p. 777). Quain divides the outer surface of the occipital lobe into an *anterior occipital gyrus*, "between the anterior occipital sulcus (transverse occipital sulcus of Toldt) and the upturned end of the lateral occipital sulcus," and a *posterior occipital gyrus* "behind the upturned end of the lateral occipital sulcus." Owing to these manifold discrepancies, I have in the text been content to give a literal English translation of the Latin names used by Toldt to denote the *sulci* and *gyri* of the outer surface of the occipital lobe.

³⁸⁷ **Rostral Lamina* (Fig. 1193, p. 776).—"The *lamina rostralis* is a lamella of the thickness of a sheet of notepaper, directly continuous with the rostrum of the corpus callosum, which curves downwards, concave anteriorly, to the anterior commissure, envelopes that structure, and below it is continued as the *lamina cinerea*; on either side the rostral lamina is directly continuous with the subcallosal gyri or peduncles of the corpus callosum, thus appearing to constitute a commissural layer between the latter" (Von Langer and Toldt, *op. cit.*, p. 641). "The *rostrum* of the corpus callosum becomes gradually narrower as it descends, and is connected with the *lamina cinerea* by a thin white layer, the *commissura baseos alba* of Henle" (Quain, *op. cit.*, vol. iii., part i., p. 128).

³⁸⁸ *First or Superior Frontal Gyrus, Marginal Gyrus, and Paracentral or Oval Lobule* (Figs. 1194, 1195, p. 777).—The *first or superior frontal gyrus* consists of two portions—an *outer*, smaller, on the outer or convex surface, and an *inner*, larger, on the inner or mesial surface of the frontal lobe; these are continuous over the upper mesial border of the hemisphere. The *outer* part is bounded above by the border just named, and below by the *superior frontal sulcus*; to this part alone the name of *first frontal convolution* is in England often restricted. The *inner* part, commonly known in England as the *marginal gyrus*, is bounded above by the upper mesial border of the hemisphere, and below and behind by the *callosom marginal fissure*. The *marginal gyrus*, again, is divided into two portions by the *anterior ascending ramus of the paracentral fissure*. The anterior and much larger portion

is that denoted by the author in Fig. 1195 as the *gyrus frontalis superior*. The posterior extremity of the marginal gyrus, separated from the rest by the above-mentioned sulcus, is known as the *paracentral or oval lobule*. This lobule is continuous with the two central gyri on either side of the upper extremity of the fissure of Rolando.

³⁸⁹ **Triangular Recess (of the Third Ventricle)* (Fig. 1202, p. 782).—This name is not used by Quain or Macalister. Von Langer and Toldt describe the recess in the following terms (*op. cit.*, pp. 632, 633): "Above the lamina cinerea, the anterior pillars of the fornix (*columnæ fornici*) constitute the anterior wall of the third ventricle. Since these pillars converge as they ascend, there exists between them a triangular fossa, the **recessus triangularis*, which is closed in front by the attachment of the septum lucidum to the front of the anterior pillars of the fornix. At the base of the **triangular recess* we see the middle of the anterior commissure." (The **triangular recess* is well shown in Fig. 1220, p. 792, and in Fig. 1224, p. 795.)

³⁹⁰ *Gyrus Fornicatus and Sulus Cinguli* (Fig. 1201, p. 783).—The terms *gyrus fornicatus*, *gyrus cinguli*, and *callosal gyrus* are used by Quain as synonymous, to denote the convolution marked *gyrus cinguli* in Fig. 1201, p. 783. Toldt, however, employs the term *gyrus fornicatus* in a more extended sense, as a general name for the *gyrus cinguli* and *gyrus hippocampi* considered as a whole (the *grand lobe limbique de Broca*). The *gyrus cinguli* is bounded above by the *sulus cinguli*, the *callosomarginal fissure* of English authors (see Fig. 1105, p. 777); and this is divided by Toldt into a *pars marginalis* and a *pars subfrontalis*, *marginal* and *subfrontal portions*, the terms being self-explanatory. The posterior portion of this sulcus was called by Wilder the *paracentral fissure*; the anterior portion, which is parallel with the genu of the corpus callosum, the *prelimbic fissure*.

³⁹¹ **Free Portion and Covered Portion of the Anterior Pillar of the Fornix* (*Ibid.*).—The anterior pillars of the fornix, or *columnæ fornici*, are rooted below in the *corpora albicantia seu mamillaria*, from which they pass obliquely upwards, forwards, and inwards through the grey matter of the **hypothalamus* [see note ³⁸⁴ above], emerging therefrom in front of the anterior extremity of the optic thalamus. We thus distinguish two portions in each anterior pillar of the fornix, viz.: an inferior portion, the **pars tecta columnæ fornici*, which is hidden in the substance of the lateral wall of the third ventricle; and a superior portion, the **pars libera columnæ fornici*, which ascends free in front of the optic thalamus" (Von Langer and Toldt, *op. cit.*, pp. 642, 643). Between the free portions of the two pillars is situated the **triangular recess* (see note ³⁸⁹ above); and they form the anterior boundary of the foramen of Monro, which is situated between the *columnæ fornici* and the anterior extremities of the optic thalamus.

³⁹² *The Use of the Term "Tenia"* (Figs. 1202, 1203, p. 784).—Von Langer and Toldt use the term *tenia* in a more precise and restricted sense than that in which it is used by Quain, and it seems expedient to give a brief account of the significance attached to this term by these respective authorities in all cases in which they use it in describing the anatomy of the brain. One instance, in which Quain and Toldt use the term in exactly the same sense, may be first dismissed; this is to denote the *tenia ventriculi quarti*, the *tenia* (*of the fourth ventricle*), often, however, called the *lingula* by English anatomists—see Fig. 1177, p. 767, Fig. 1178, p. 768, and Fig. 1188, p. 773 (Macalister denotes the lower part of the tenia or lingula by the name *ponticulus*, a name applied by Quain to a quite different structure, viz., a band of arched fibres often seen crossing the upper end of the

pyramid of the medulla oblongata). The other *tenia* described by Toldt—*tenia chorioidea*, *tenia fimbria*, *tenia fornicis*, and *tenia thalami*, all classed together as *tenia telarum*—are the lines of attachment of the velum interpositum and its associated choroid plexuses, along which lines the *lamina chorioidea epithelialis*, i.e., the epithelial coat of these structures, becomes continuous with the epithelial covering of the ependyma of the ventricles. Thus, the *tenia thalami* is the line of attachment on either side of the lower surface of the velum interpositum, this line extending forwards from the pineal body and its peduncle along the *stria medullaris thalami* (*pineal stria* of English authors, also known in England as the *tenia fornicis*—see below, and note ³⁹⁵ above) to the foramen of Monro, where the *tenia thalami* passes into the *tenia chorioidea*. From the foramen of Monro, the *inner layer* of the attachment of the choroid plexus of the lateral ventricle passes (1) along the outer free margin of the fornix, where it forms the *tenia fornicis*, and is continued (2) as the *tenia fimbria* along the outer margin of the *fimbria hippocampi* (see below) to the end of the inferior or descending horn of the lateral ventricle, where this layer also becomes continuous with the *tenia chorioidea*. This last, the *outer layer* of the attachment of the choroid plexus of the lateral ventricle, "runs along the border of a thin layer which proceeds from the tail of the caudate nucleus as a portion of the wall of the vesicle of the cerebral hemisphere in which no medulla has formed, and is attached to the optic thalamus along the upper surface of the *vena terminalis* (*vein of the corpus striatum*), hence called the *lamina affixa* [see below]. At the foramen of Monro, as already remarked, the *tenia chorioidea* is continuous with the *tenia thalami* (*op. cit.*, p. 644). It will be seen that Toldt's use of the term *tenia* has the great merit of consistency.—As regards the *tenia* of English authors: (1) the *tenia fornicis*, as already explained, is a synonym for the *pineal stria*, called by Toldt *stria medullaris thalami*, and is the line of attachment of the choroid plexus of the third ventricle (called by Toldt *tenia thalami*); (2) the *tenia hippocampi* or *fimbria* (*fimbria hippocampi* of Toldt) is the downward prolongation, in the inferior or descending horn of the lateral ventricle, of the posterior pillar of the fornix, and is itself prolonged anteriorly into the white matter of the uncus (this structure is called by Macalister the *corpus fimbriatum*; its inner margin appears on the surface of the limbic lobe, above the dentate convolution or *fascia dentata* Tarini, from which it is separated by the *fimbriodentate sulcus*—see Fig. 1201, p. 783); to the ventricular margin of the fimbria the choroid plexus of the lateral ventricle is attached by means of (3) the *tenia fimbria*, a term used by Quain (*op. cit.*, vol. iii., part i., p. 158) in the same sense as that in which it is used by Toldt; (4) the *tenia semicircularis*, called by Toldt *stria terminalis*, a name very commonly used also by English anatomists, is the white stria separating the dorsal surface of the optic thalamus from the caudate nucleus of the corpus striatum: it is adjacent to the line of attachment of part of the *tenia chorioidea* of Toldt, and along it runs the *vein of the corpus striatum* (*vena terminalis* of Toldt): "Close to the ependyma and lying over this vein of the corpus striatum is a small greyish band, containing longitudinally running nerve fibres: this has been called the *lamina cornea*" (Quain, *op. cit.*, vol. iii., part i., p. 122)—the *lamina cornea* of Quain is the *lamina affixa* of Toldt; (5) the *tenia pontis* (*stria lateralis pontis* of Toldt) is figured on p. 766, and described in note ² on that page; (6) finally, the name of *tenia tecta* (*stria optica*, Macalister) is sometimes given to the grey or *lateral longitudinal striae* on the upper or dorsal surface of the corpus callosum—(see Fig. 1198, p. 780). The *tenia*

telarum of the author are shown in the figures on p. 784 and p. 785.

³⁹⁵ *External or Superficial Arched or Arcuate Fibres* (Fig. 1208, p. 786).—These are divided by Von Langer and Toldt into two groups—*anterior* and *posterior*. The former group consist of the fibres usually spoken of in England as the *outer* or *superficial arched fibres* without further qualification, which emerge from the anterior median fissure, and pass backwards over the pyramid and olive to join the restiform body. According to Quain, they decussate in the raphe of the medulla oblongata, "but their further course is not certainly known." Von Langer and Toldt state that they arise from the nuclei of the funiculus gracilis and the funiculus cuneatus. "The *posterior external arched fibres* pass directly from the nuclei of the funiculus gracilis and the funiculus cuneatus to the surface of the restiform body of the same side" (*op. cit.*, p. 614). These *posterior arched fibres* are not mentioned by Quain.

³⁹⁶ *Decussation of the Fillet* (Figs. 1208, 1209, p. 786).—This decussation has received very various names. "Rather unfortunately," as Gowers says, it has been called the *superior pyramidal decussation*; less objectionable is the shorter name, *superior decussation*; but this is not sufficiently distinctive. Macalister calls it the *sensory pyramid crossing*, in which the misleading analogy with the pyramids is once more alluded to. The name *sensory decussation*, also, is in common use. But the name used in the text, *decussation of the fillet*, the English equivalent of the Continental *decussatio lemniscorum*, is greatly to be preferred.

³⁹⁵ *Cerebello-olivary Fibres* (Fig. 1210, p. 787).—At the end of their description of the medulla oblongata, Von Langer and Toldt describe the above-named fibres in the following terms (*op. cit.*, p. 614): "Finally, we must mention a tract of fibres of considerable size, which does not appear on the surface of the medulla, but forms an important constituent of the restiform bodies. This tract takes origin in the nerve cells of the inferior olfactory nucleus, traverses the white centre of that nucleus, and emerges at its hilum; it then crosses the median plane, and enters the opposite olfactory nucleus. After passing through this latter, it passes upwards and backwards into the restiform body, and thus to the cerebellum. The tract in question is known as the *"fibra cerebello-olivaris."* This name is not used by Quain, but the fibres are described by that author in his account of the *nucleus of the olfactory body*. "The open part of the hilum of this *nucleus*," he writes (*op. cit.*, vol. iii., part i., p. 56), "looks towards the middle line and receives a considerable tract of white fibres, which emanate from the raphe, being derived to all appearance from the opposite olive, and pass into the hilum along its whole extent, forming the so-called *olfactory peduncle*. The fibres of the olfactory peduncle are partly lost in the grey matter of the olfactory nucleus, but mostly pass in small bundles through the lamina, those which are more posterior turning backwards and coursing obliquely through the posterior part of the lateral area to join the restiform body and thus to pass to the cerebellum as internal arched fibres. Others after coursing through the grey lamina . . . reach the surface . . . and are continued as part of the layer of external arched fibres into the restiform body. Through the restiform body, the arched fibres, and the fibres of the olfactory peduncles, the cerebellar hemisphere of one side is connected, therefore, with the olfactory nuclei of both sides. But the connection with the opposite side is the more intimate."

³⁹⁶ *Pyramidal Nucleus* (Fig. 1210, p. 787).—"In the region of the pyramids, small deposits of grey matter are also met with,

the *"pyramidal nuclei," "nuclei pyramidis*, the number and location of which is not constant; most frequently they are met with toward the posterior part of the pyramid, near the olfactory nucleus" (Von Langer and Toldt, *op. cit.*, p. 613). It must be noticed that the *"pyramidal nucleus* depicted in Fig. 1210 is a distinct grey nucleus from the *internal accessory olfactory nucleus* shown in Figs. 1208, 1209, which latter is sometimes called the *pyramidal nucleus* by English authors.

³⁹⁷ *Crustal Bundle of the Fillet* (Figs. 1212, 1213, p. 788).—It is to be regretted that neither Toldt nor Quain gives any distinctive name to this fasciculus. The latter authority describes it in the following terms (*op. cit.*, vol. iii., part i., p. 103): "The fibres of the mesial fillet nearest to the middle line separate themselves from the rest, and pass at the lower part of the mesencephalon into the crusta, where they form a mesial bundle (Wernicke), which is traceable up into the subthalamic region, where it joins the *ansa lenticularis*." This bundle contains, according to Spitzka, the afferent cerebral tracts of the cranial nerves (*op. cit.*, p. 101). Gowers describes this fasciculus still more briefly: "One small bundle of fibres in the inner part of the crusta differs from the rest. As it descends it passes backwards into the tegmentum and joins the fillet. Its further relations have not been traced" ("Diseases of the Nervous System," 2nd ed., 1893, vol. ii., p. 32). I would suggest the adoption of the name *"crustal bundle of the fillet* (see Figs. 1212, 1213, and 1225).

³⁹⁸ *Nucleus of the Lateral Fillet* (Fig. 1213, p. 788).—The name *nucleus lemnisci lateralis* occurs in two different figures of this work, viz., in the section of the mid-brain depicted in Fig. 1213, p. 788, and in the diagram of the tract of the fillet in Fig. 1225, p. 796. In Von Langer and Toldt's "Anatomy" (p. 657), the connexions of the *lemniscus lateralis (acusticus)*—the *lower or lateral fillet*—are thus described: "It arises for the most part from the trapezium, but in addition from the *nucleus of the fillet* [Schleifenkern—no Latin equivalent is given] situate posterior to the external or *dorsal accessory olfactory nucleus*, and further is reinforced by fibres from the auditory striae of the auditory triangle of the opposite side. The indirect continuation of this tract passes through the lower brachium of the quadrigeminal bodies to the internal corpus geniculatum, and thence to the cortex of the temporal lobe (*central tract of the auditory nerve*)."
The *"nucleus lemnisci lateralis"* shown in Fig. 1213 is altogether too remote from the *accessory olfactory nucleus* for its identification with the *nucleus of the fillet* described in the above quotation. In Fig. 1225, on the other hand, the *nucleus lemnisci lateralis* is figured more than half an inch below the inferior quadrigeminal body, beneath which it appears in the section depicted in Fig. 1213; and yet it is still a considerable way above the level of the *accessory olfactory nuclei*. The connexions of the lower end of the lateral fillet, as shown in Fig. 1225, with the trapezium, the auditory striae (through the upper olfactory nucleus), and with the "*nucleus lemnisci lateralis*," lead us in this case, however, to identify the latter with the *nucleus of the fillet* mentioned in the quotation from Von Langer and Toldt's "Anatomy." The fact that Fig. 1225 is diagrammatic will not suffice to account for the discrepancy between Figs. 1213 and 1225, and it seems probable that the *nucleus lemnisci lateralis* of the former figure is an *upper* nucleus of the lateral fillet, an outlying portion of the nucleus of the lower quadrigeminal body; while the *nucleus lemnisci lateralis* of Fig. 1225 is a *lower* nucleus of the lateral fillet, viz., the medullary nucleus before mentioned adjacent to the external *accessory olfactory nucleus*. Quain (*op. cit.*, vol. iii., part i., p. 104) states that according to Edinger some of the fibres of the fillet

"have a cell-station in a special group of nerve cells (upper nucleus of the fillet) at the level of the inferior corpora quadrigemina." Gowers, again (*op. cit.*, vol. ii., p. 36), writing of the different sets of fibres of the fillet, says: "Some fibres go to the posterior corpus quadrigeminum. . . . Others end in a collection of grey matter lying outside the junction of the two corpora quadrigemina, the *nucleus lemnisci* of Flechsig and Bechterew." The identification of Edinger's *upper nucleus of the fillet* with Flechsig and Bechterew's *nucleus lemnisci*, and the identification of both with the *nucleus lemnisci lateralis* of Fig. 1213 in Toldt's Atlas seems plausible; but the descriptions of Quain and of Gowers are too brief to allow of any certainty in the matter.

³⁹⁹ *Tegmental Decussation* (Fig. 1214, p. 789).—This term (*decussatio tegmentorum* in the author's nomenclature) is by some writers on anatomy used to denote the decussation of *all* fibres that cross the median plane within the boundaries of the tegmentum. In this work, however, the *decussation of the brachia conjunctiva or superior peduncles of the cerebellum (decussatio brachii conjunctivi)* in the author's nomenclature—see Fig. 1172, p. 764, Fig. 1187, p. 772, Fig. 1213, p. 788, and Fig. 1226, p. 797) is not included in the *tegmental decussation*, the latter term denoting the decussation of those tegmental fibres only which do not belong to the superior peduncles of the cerebellum.

⁴⁰⁰ *Strata of the Upper or Anterior Quadrigeminal Bodies* (Fig. 1214, p. 789).—According to Quain's account of the structure of these bodies (*op. cit.*, vol. iii., part i., pp. 106, 107): "Most externally or uppermost is a thin layer of superficial neuroglia, containing no nerve cells or fibres. . . . Excluding this neuroglia layer, and also the central grey matter around the Sylvian aqueduct [*stratum griseum centrale* in Toldt's nomenclature], Tartuferi distinguishes four strata in vertical sections." These strata are: (1) *Stratum zonale*: superficial white layer. (2) *Stratum cinereum*: grey cap. (3) *Stratum albo-cinereum superius*: upper grey-white layer; or *stratum opticum*. (4) *Stratum albo-cinereum inferius*: deep grey-white layer; or *stratum lemnisci*. Von Langer and Toldt, on the other hand (*op. cit.*, p. 628), describe three layers only in this region: (1) *Stratum zonale*; (2) *stratum griseum colliculi superioris*; and (3) *stratum album profundum*. The first is certainly identical with the *stratum zonale* of Quain. The third, described as "a white lamella forming the lower boundary of the quadrigeminal layer," is shown by Fig. 1214 to be identical with the *stratum lemnisci* of Quain. The second would appear to comprise Quain's second and third layers—the *stratum cinereum* and the *stratum opticum*. The latter is the layer of fibres seen in Fig. 1214 arching outwards towards the inferior or posterior brachium. These fibres do not, however, pass into this brachium, but into the superior or anterior brachium, being continued through this body into the optic tract. Lines indicating the *optic layer* and the *layer of the fillet* have in this edition been added to Fig. 1214.

⁴⁰¹ *Radiation of the Corpus Striatum* (Fig. 1216, p. 790).—This term is not used by Quain. Von Langer and Toldt write (*op. cit.*, p. 655): "It must be mentioned as a fact of great importance, that the outer zone of the lenticular nucleus, as well as the corpus striatum [*i.e.*, the caudate nucleus—see note ¹ to p. 766], must be regarded as functionally representing a portion of the cortex cerebri, not only in respect of its mode of origin, but also because the nerve fibres entering this nucleus terminate in its nerve cells. But if, nevertheless, from both these basal ganglia, radiating nerve fibres pass to the cortex of the frontal and parietal lobes, forming the *radiatio corporis striati*, these fibres may with great probability be regarded as *association fibres*, homologous

with those known to connect different regions of the cerebral cortex." In Ellis's "Demonstrations of Anatomy," 10th ed., p. 227, the fibres of the corona radiata are said to be of two kinds, viz., "those extending without interruption from the cortex to the isthmus cerebri, and those uniting the cortex with the corpus striatum and optic thalamus." The fibres of the corona radiata that unite the cortex with the corpus striatum constitute the **radiation of the corpus striatum* of Toldt. Gowers, on the other hand, writes ("Diseases of the Nervous System," 2nd ed., vol. ii., p. 41): "It is doubtful whether the corpus striatum has any connexion with the cortex, and the old hypothesis that its cells interrupt the fibres which conduct motor impulses seems to be altogether wrong. Meynert thought that many fibres pass from the caudate nucleus to the cortex; but the researches of Wernicke and others make this connexion very doubtful." It is, of course, the views of Meynert that are embodied in the above quotation from Von Langer and Toldt.

⁴⁰² *Subthalamic Tegmental Region* (Fig. 1219, p. 792).—This, the forward prolongation of the tegmentum beneath the posterior part of the optic thalamus, is the *stratum intermedium* of the Continental nomenclature, forming the principal portion of the *pars mamillaris hypothalami* of the same nomenclature (see Appendix, note ³⁵). The German vernacular name for this part of the brain is *Zwischenischicht*, which corresponds roughly with the English *transitional region*, an alternative name for the somewhat cumbersome term *subthalamic tegmental region*. (It must be noted that Quain uses the term *stratum intermedium* in an entirely different sense, viz., to denote the deepest fibres of the crux, those immediately adjacent to the substantia nigra.) The subthalamic tegmental region was divided by Forel into three layers. The *uppermost*, *stratum dorsale*, "consists chiefly of fine longitudinal fibres, prolonged from the posterior longitudinal bundle according to Meynert, or from the fibres enclosing the tegmental nucleus according to Forel, possibly from both sources. The red nucleus of the tegmentum is prolonged into its posterior part, and from this a considerable number of fibres stream into the internal medullary lamina of the thalamus, and a well-marked bundle passes across the internal capsule to the lenticular nucleus" (Quain, *op. cit.*, vol. iii., part i., p. 114). The name *stratum dorsale* is not used by Toldt, but the bundle of fibres last mentioned is shown in Fig. 1219, p. 792, as the "*fasiculus from the tegmental tract to the lenticular nucleus* ("Habenbündel zum Linsenkern"). The *lowermost* layer of the subthalamic tegmental region is formed by the *corpus subthalamicum*, or *nucleus of Luys* (*nucleus hypothalamicus*, *vel corpus Luysi*, according to Toldt—see Fig. 1219, p. 792). This "has here taken the place of the substantia nigra, lying next to the prolongation of the crux, the fibres of which are seen at the side of the subthalamic tegmental region forming the internal capsule" (Quain, *op. cit.*, loc. cit.). The *middle* layer of this region, known as the *zona incerta*, "is a reticular formation prolonged from that of the tegmentum; it passes anteriorly into the substantia interansals" (*op. cit.*, loc. cit.). This layer is ignored by Toldt.

⁴⁰³ **Grey Portion of the Hypothalamus* (Fig. 1220, p. 792).—There is no allusion to the **pars grisea hypothalami* in Von Langer and Toldt's "Anatomy," nor does Quain give any distinctive name to this portion of the brain. The latter author, however, alludes to it in the following terms (*op. cit.*, vol. iii., part i., p. 112): "The lower surface of the thalamus is continuous posteriorly with the prolongation of the tegmentum (subthalamic tegmental region), but in front this prolongation inclines to the outer side, and becomes lost in a layer of grey matter which is continuous internally with the grey matter of

the floor of the ventricle, and is seen at the base of the brain as the anterior perforated lamina." These connexions are well seen in Fig. 1220. Regarding the hypothalamus in general see Appendix, note ³⁵¹, and regarding the subthalamic tegmental region see note ⁴⁰² above.

⁴⁰⁴ *Nomenclature of the Parts of the Internal Capsule* (Fig. 1223, p. 794).—"In horizontal sections the internal capsule shows a bend (*genus*) opposite the stria terminalis, the anterior third forming an angle of about 120° with the posterior two-thirds; these two parts are known as the *anterior* and *posterior segments* respectively" (Quain, *op. cit.*, vol. iii., part i., p. 136). In the official German nomenclature, the anterior segment is the *pars frontalis capsulae interna*; the posterior, *pars occipitalis capsula interna*. In the German vernacular these are *vorderer Schenkel* and *hinterer Schenkel* respectively; and in England they are more often denoted by the equivalent terms *anterior limb* and *posterior limb*, respectively, than by the name *segment* used by Quain. As regards the *genus capsula interna*, Gowers remarks (*op. cit.*, vol. ii., p. 27): "The angle at which the limbs of the capsule join is called its *elbow* or *knee*. . . . Such a bend (as in a pipe) is termed a 'knee' in Germany, an 'elbow' in this country. It is perhaps better to term the junction the *angle* of the capsule." The three parts of the capsule are seen as above described in Fig. 1223, p. 794.

⁴⁰⁵ *Tegmental Region and Tegmental Tract* (Fig. 1225, p. 796).—That the diagrammatic representation of the fibres of the tegmental system given in Figs. 1225 and 1226 may be more readily understood, I condense an account of this system from Von Langer and Toldt's "Anatomy," 10th ed., pp. 663-665. Those desiring a more detailed account both of the tegmental system and the pedal system (pyramidal tract, etc.) should refer to Foster's "Physiology," 6th ed., pp. 984-994: The *tegmental tract* (*Hauptsystem*) is thus named because its fibres traverse the tegmentum of the cerebral peduncle. Its component parts have, however, a far wider range than this, comprising what is known as the *tegmental region* (*Hauptsystem*). This region includes: (1) The parts bordering the *calamus scriptorius* (lower limit of the region); (2) the dorsal segment of the *medulla oblongata*; (3) the dorsal segment of the *pons*; (4) the tegmentum of the cerebral peduncle; (5) that part of the interbrain known as the subthalamic tegmental region (*stratum intermedium* of Toldt—see note ⁴⁰² above—upper or anterior limit of the tegmental region); [we must add (6) what Gowers calls the *tegmental radiation*—i.e., the uppermost fibres of the sensory path as they radiate to the cortex from the hindermost third of the posterior limb of the internal capsule]. The most important structures forming the tegmental tract are: The nuclei of the slender and cuneate columns, the fillet, the *formatio reticularis*, the red nucleus, the nucleus of Luys, and the *ansa lenticularis*; but, since a portion of the tegmental tract traverses the cerebellum, we must include the *restiform body*, the dentate nucleus, and the superior peduncle of the cerebellum. The tegmental tract consists of two portions—a ventral and a dorsal. The *ventral portion* consists chiefly of the *tract of the fillet*, connected below with the nuclei of the slender and cuneate columns, passing above in part to the *tegmental radiation* already mentioned, in part to the *corpora quadrigemina*, the optic thalamus, and the *globus pallidus*; it also includes the *tegmental fasciculi of the posterior commissure*, which, after crossing in this commissure to the opposite side of the brain, join the mesial nucleus of the optic thalamus. The *dorsal portion* consists of fibres which arise in the nuclei of the slender and cuneate columns, pass as arched fibres to the *restiform body*, thence to the nucleus dentatus of the cerebellum,

and onwards from there into the superior peduncle of the cerebellum; with this peduncle the fibres of the tract decussate, pass through the red nucleus, and thence through the subthalamic tegmental region to their destination; a few of these fibres also pass into the internal capsule, but for the most part they terminate in the *corpora quadrigemina*, the optic thalamus, and the *globus pallidus*. See also note ⁴⁰⁶ below.

⁴⁰⁶ *Classification of the Fibres of the Cerebral Hemispheres* (*Ibid.*).—The fibres of the medullary centres of the hemispheres may be arranged in three principal groups. A. *Projection fibres* (*Leitungssystem*), which pass from the *isthmus encephali* to the hemispheres or vice versa; the most important divisions of these are: (1) the *pedal system* with the *pyramidal tract* (Fig. 1229), and (2) the *tegmental system* with the *tegmental tract* (Figs. 1225 and 1226; also see note ⁴⁰⁵ above). B. *Transverse or commissural fibres* (*Commissuren*), which connect the cortex of the two hemispheres; these comprise: (1) the *anterior commissure* (Fig. 1230, and note ⁴⁰⁸ below), the *principal cerebral commissure* in all vertebrates below mammals, and (2) the *corpus callosum* or *great commissure* (Fig. 1230), which appears first in the lower mammals, and is enlarged proportionately with the development of the mantle (see note ⁶ to p. 760). C. *Association fibres* (*Associations*), which connect different parts of the cortex of the same hemisphere; these are: (1) *short association fibres* (*fibra propria*, Meynert; *lamina arcuata gyrorum*, Arnold; *fibra arcuata cerebri*, Toldt—see Fig. 1231), which connect adjacent gyri, and (2) *long association fibres* (Fig. 1231), which connect more widely separated portions of the grey matter of the hemispheres. These latter fibres are mostly collected into definite bundles, the principal being the following: (a) The *superior association bundle* (*superior longitudinal fasciculus* or *bundle*; *fasciculus longitudinalis superior*, Toldt; *fasciculus arcuatus*, Burdach), sagittal fibres, passing from the frontal to the occipital and temporal lobes; (b) the *inferior association bundle* (*inferior longitudinal fasciculus* or *bundle*; *fasciculus longitudinalis inferior*, Toldt; *temporo-occipital bundle*), running along the outer wall of the posterior and descending horns of the lateral ventricle, and connecting the occipital and temporal lobes; (c) the *anterior association bundle* or *uncinate fasciculus* (*fasciculus uncinatus*, Toldt), which curves round the bottom of the Sylvian fissure near the *limen insulae*, and serves to connect the third frontal gyrus with the temporal lobe and the anterior part of the limbic lobe; (d) the *cingulum* (also known as the *fillet of the corpus callosum* and as the *covered band of Reil*), the principal association bundle of the gyrus *fornicatus*: its fibres terminate in the cortex of the outer surface of the hemisphere, which they connect with the hippocampal and callosal gyri (Beevor); (e) the *perpendicular fasciculus* (Wernicke—not mentioned by Toldt), which connects the inferior parietal lobe with the fusiform lobule; (f) the *fornix*, which connects the hippocampal region of the limbic lobe with the *corpus albicans*, and is commonly stated to be continued to the thalamus as the bundle of Vicq d'Azyr. The connexion between the fibres of the fornix and the bundle of Vicq d'Azyr is, however, denied by Gudden and Forel.

⁴⁰⁷ *Nucleus of the Third Nerve* (Fig. 1228, p. 799).—Quain divides the nucleus of the third nerve into parts in a manner considerably more elaborate than that shown by Toldt in Fig. 1228. I have, therefore, not attempted to harmonize the nomenclature of these two authors, but have merely given a literal translation of the terms used by Toldt.

⁴⁰⁸ *Parts of the Anterior Commissure* (Fig. 1230, p. 801).—By Von Langer and Toldt these are called simply *anterior* and *posterior* portions respectively. Quain, however, writes (*op. cit.*,

vol. iii., part i., p. 164): "The fibres of the anterior commissure which pass into the temporal lobe form by far the greater part of the commissure in man, and constitute what has been termed by Ganser the *fasz temporalis*. Besides these fibres, there are others which are derived from the lobus olfactorius, and which appear to connect the olfactory tract of one side with the hippocampal gyrus of the opposite side. These form the *fasz olfactoria* of Ganser; this part is very slightly developed in man." See also note ⁴⁰⁶ above.

⁴⁰⁹ *Reservoirs of Subarachnoid Fluid* (Fig. 1232, p. 802).—Quain uses Latin names for these, and gives no complete list of English equivalents; the English names in the text are, therefore, for the most part supplied by the translator. Quain enumerates the *cisterna arachnoidea*s as follows: Cisterna cerebellomedullaris (directly continuous with the subarachnoid space of the spinal cord), cisterna pontis media seu basilaris and cisterna pontis laterales, cisterna interpeduncularis, cisterna peripeduncularis, cisterna chiasmatis (behind the optic chiasma), cisterna lamina cinerea (in front of the chiasma), cisterna fossae Sylvii, and cisterna corporis callosi. Of these, the cisterna cerebellomedullaris, the cisterna interpeduncularis, and the cisterna chiasmatis are identical with those given the same name by Toldt; the cisterna pontis media seu basilaris of Quain is identical with the cisterna pontis of Toldt, while the cisterna pontis laterales of Quain are not depicted by the German author, nor is the cisterna peripeduncularis visible in Fig. 1232, which represents a median sagittal section; the cisterna laminae cinereae of Quain is merged in the cisterna fissurae cerebri lateralis of Toldt, which for the rest is equivalent to the cisterna fossa Sylvii of the English anatomist; the cisterna vena cerebri magna of Toldt represents the posterior extremity of Quain's cisterna corporis callosi, the greater part of which, however, lying above the corpus callosum, is not indicated in Fig. 1232. "These spaces," writes Quain (*op. cit.*, vol. iii., part i., p. 188), "are all in free communication with one another, being only partly separated by imperfect septa of subarachnoid tissue. They receive the subarachnoid clefts (*fissurae*) which follow the course of the great fissures (Rolandic, Sylvian, parallel, etc.), and which themselves receive the clefts which follow the course of the secondary and tertiary fissures (*vivi* and *rivulii* of Duret)."

⁴¹⁰ *Lateral and Sigmoid Sinuses* (Fig. 1233, p. 803).—In this work the denotation of the term *lateral sinus* is restricted to that portion of the *lateral sinus* of most English authors which is in contact with the occipital and parietal bones, the remaining, temporal, portion of the *lateral sinus* of English authors being here called the **sigmoid sinus*. This matter is more fully explained in the Appendix to Part V., note ³⁹⁴.

⁴¹¹ *Diaphragma Sella and Foramen Diaphragmatis Sella* (Fig. 1234, p. 804).—The layer of the dura mater which forms the roof of the pituitary fossa (see note ² to p. 60, in Part I.) has been somewhat variously named. Toldt's name, *diaphragma sellæ*, is sometimes used in England; the *foramen diaphragmatis sellæ* is the central aperture in the diaphragm through which the infundibulum passes to the pituitary body. According to Quain (*op. cit.*, vol. iii., part i., p. 182), "the portion of dura mater which stretches over the sella turcica, and, pierced by a small hole for the infundibulum, covers the pituitary body, is sometimes spoken of as the *operculum*, or *tentorium of the hypophysis*." According to Macalister (*op. cit.*, p. 530), the dura mater "forms a shelf-like *pituitary diaphragm* with a small central hole for the infundibulum." In this work I have chosen the names *pituitary diaphragm* and *orifice of the pituitary diaphragm* as the English equivalents of *diaphragma sellæ* and *foramen diaphragmatis sellæ*,

respectively (see Fig. 1234, p. 804, Figs. 1235 and 1236, p. 805, and Fig. 1239, p. 808).

⁴¹² **Notch of the Tentorium* (Figs. 1235, 1236, p. 805).—The somewhat inappropriate name of *superior occipital foramen* is applied by Macalister to what Toldt calls the *incisura tentorii*, viz., the aperture bounded behind and laterally by the free margin of the tentorium, through which the isthmus encephali passes with the basilar artery and the third and fourth cranial nerves. The *inferior occipital foramen* is better known as the *foramen magnum*.

⁴¹³ *Posterior Cutaneous Branches* (Fig. 1240, p. 810).—These are the cutaneous offsets of the posterior primary divisions of the spinal nerves, being the terminal portions of these nerves which reach the integument after passing through and supplying the muscles of the back. Fig. 1240 is diagrammatic, and it must not be supposed that as an actual fact from both the external and the internal branch of the posterior primary division of each dorsal nerve a posterior cutaneous branch is derived, giving external and internal offsets. According to Von Langer and Toldt (*op. cit.*, p. 678), "the *posterior cutaneous branches*, *rami cutanei dorsales*, proceed in the case of the posterior primary divisions of the upper dorsal nerves from the inner branches only, whereas in the case of the posterior primary divisions of the lower dorsal nerves the outer branches furnish the largest cutaneous offset." It must be observed that the terms *internal branch* and *external branch* (of the posterior primary division) are not, strictly speaking, the English equivalents of *ramus cutaneus dorsalis medialis* and *ramus cutaneus dorsalis lateralis*, respectively; but in Fig. 1240 the author has applied these Latin names to the *posterior cutaneous branches* before their emergence from the muscles, and in the case of the *ramus medialis* even before the origin of the muscular branch.

⁴¹⁴ *Intercostal Nerves* (*Ibid.*).—The upper six intercostal nerves, the distribution of which is confined to the parieties of the thorax, are sometimes distinguished as the *pectoral intercostal nerves*; the lower six, the anterior terminal branches of which supply the anterior wall of the abdomen, are similarly distinguished as the *abdominal intercostal nerves*. The twelfth nerve, being situated below the last rib, and therefore wholly contained in the abdominal wall, is for this reason sometimes called the *subcostal nerve*.

⁴¹⁵ **Ansa* (Fig. 1243, p. 812).—"Exact enumeration of the nerve fibres [of the roots of the spinal nerves] has shown that the total number of entering and emerging fibres is the same on the two sides of the spinal cord, but it has further established that the individual roots of any one pair do not always contain the same number of fibres on both sides, and that the root-bundles are therefore often asymmetrical. Hence it happens that a particular nerve fibre does not always emerge in the same root; none the less, owing to the fact that their destinations are constant, aberrant fibres are by means of anastomoses re-conducted into their appropriate paths. Anastomoses of this character are met with as high up as the nerve roots themselves; they are especially common between the cervical nerve roots, and are found more frequently connecting the sensory than connecting the motor nerve roots. Such anastomoses between the nerve roots are known as *ansa* (loops)" (Von Langer and Toldt, *op. cit.*, p. 586). Quain says merely (*op. cit.*, vol. iii., part ii., p. 276) that "communications between the root filaments (especially the posterior) of adjoining nerves, are frequently met with"; but the term *ansa* is not used by this author.

⁴¹⁶ *Third Occipital Nerve* (Fig. 1245, p. 813).—"From the cutaneous branch of [the internal branch of the posterior primary division of] the third [cervical] nerve an offset passes upwards

to the integument on the lower part of the occiput, lying at the inner side of the great occipital nerve; this is sometimes called the *third occipital nerve*. Quain (*op. cit.*, vol. iii., part ii., p. 280) thus describes this nerve as normal, though Toldt calls it a *variety*. It is not mentioned by Von Langer and Toldt in their "Anatomy."

⁴¹⁷ *Mammary Branches* (Fig. 1247, p. 815).—"From the *lateral* and *anterior cutaneous nerves of the thorax* special offsets are furnished to the mammary gland, the *outer mammary branches* being derived from the anterior branches of the lateral offsets of the fourth, fifth, and sixth intercostal nerves, and the *inner mammary branches* from the external branches of the anterior (terminal) offsets of the third and fourth intercostal nerves" (Von Langer and Toldt, *op. cit.*, p. 682).

⁴¹⁸ *Subscapular Nerves* (*Ibid.*).—There are usually three *subscapular nerves*. That which supplies the upper part of the subscapularis muscle, the smallest of the three, is the *upper subscapular nerve*; that which supplies the latissimus dorsi muscle, the largest of the three, is called by Quain the *middle* or *long subscapular nerve*, by Macalister the *long subscapular nerve*, and by Toldt *N. thoracodorsalis*; that which supplies the teres major muscle and the lower part of the subscapularis muscle is called by Quain the *lower subscapular nerve*, and by Macalister the *middle subscapular nerve*.

⁴¹⁹ *Communicating Cervical Nerves* (Fig. 1248, p. 816).—These are the branches from the second and third cervical nerves, respectively, which join the *descending cervical nerve (descendens noni)*—see note ⁴²⁰ below) in the *ansa cervicalis* (see Fig. 1249, p. 817). There appears to be no complete Latin name for these branches in the author's terminology. He calls them *communicating branches to the ramus descendens nervi hypoglossi*.

⁴²⁰ *Descending Cervical Nerve* (Fig. 1249, p. 817).—Macalister denotes this nerve by the Latin name *nervus descendens cervicis*. It is, however, still very commonly known by the old name of *descendens noni*, the hypoglossal nerve, the twelfth cranial nerve of Soemmerring, being the ninth cranial nerve, *nervus nonius*, in the enumeration of Willis.

⁴²¹ *Ansa Cervicalis* (*Ibid.*).—This loop, formed by the union of the *descending cervical nerve* (see note ⁴²⁰ above) with the *communicating cervical nerves* (see note ⁴¹⁹ above), is often known in England by the name used by Toldt, *ansa hypoglossi*. This name, indeed, is more distinctive than the name *ansa cervicalis*, used by Quain, and the name *ansa infrathyroidea*, used by Macalister.

⁴²² *Cardiac Branches of the Pneumogastric Nerve* (*Ibid.*).—The *cervical cardiac branches* of the vagus arise both at the upper and the lower part of the neck. The *upper cervical cardiac branches* are small filaments which join the cardiac branches of the sympathetic; these are ignored in Toldt's nomenclature, and for this reason the *lower cervical cardiac branch* of the vagus, which arises at the lower part of the neck, is called by him *ramus cardiacus superior nervi vagi*. The *thoracic cardiac branches* of the vagus (on the left side usually arising from the inferior or recurrent laryngeal nerve) are by Toldt called *ramus cardiacus inferior nervi vagi*.

⁴²³ *Great Auricular Nerve* (Fig. 1250, p. 818).—In addition to *facial* and *auricular branches*, corresponding respectively to the *ramus anterior* and *ramus posterior* of Toldt, the *great auricular nerve* commonly sends an offset to the integument over the upper part of the sternocleidomastoid muscle and the mastoid process, which is separately named by Quain the *mastoid branch*. This branch is not accounted for in Toldt's nomenclature. Sometimes it is a separate offset of the cervical plexus, ascending between the *great auricular* and *small occipital nerves*.

⁴²⁴ **Phrenico-abdominal Branch* (Fig. 1252, p. 820).—"Some of the offsets of the phrenic nerve, *rami phrenico-abdominales*, pass

through the caval and cesophageal openings in the diaphragm, and also on the left side in front of the central tendon between the muscular fasciculi. For the most part these filaments are lost in the crura of the diaphragm, but some pass to the serous investment of the liver and to the celiac plexus. The distribution of the phrenic nerve shows that it is not exclusively motor in function" (Von Langer and Toldt, *op. cit.*, p. 681). A description of these terminal offsets of the phrenic nerve is given by Quain, but neither this author nor Macalister makes use of the name **phrenico-abdominal branches*.

⁴²⁵ **Posterior Thoracic Nerves* (Fig. 1253, p. 821).—In the German official nomenclature the name *nervi thoracales posteriores* is a general name for the *n. dorsalis scapulae* and *n. thoracalis longus*, the *nervus to the rhomboid muscles* and the *posterior thoracic nerve* of English authors. The latter nerve was formerly known as the *external respiratory nerve of Bell*.

⁴²⁶ *Cords of the Brachial Plexus* (Fig. 1255, p. 823).—These are usually distinguished as *outer*, *inner*, and *posterior*, corresponding strictly to the *fasciculus lateralis*, *fasciculus medialis*, and *fasciculus posterior* of Toldt's nomenclature. Sometimes, however, the *outer cord* is called the *upper cord*, and the *inner cord* the *lower cord*, of the brachial plexus.

⁴²⁷ *Nerve to the Inner Head of the Triceps and Ulnar Collateral Nerve* (*Ibid.*).—The *nerve to the inner head of the triceps* divides into an upper, short branch, which passes immediately to the muscle, and a lower, long branch, "the *ulnar collateral*, which descends so close to the ulnar nerve that it often appears to join it" (Macalister, *op. cit.*, p. 298). Separating from the ulnar nerve a little above the elbow, it enters the lower short fibres of the internal or deep head. The name of *ulnar collateral nerve* was given to this long filament by Krause.

⁴²⁸ (*Ibid.*) According to Quain, the cutaneous area supplied by the musculocutaneous nerve lies entirely below the elbow, and the skin on the outer side of the elbow, to which in the specimen shown in Fig. 1255 a branch is furnished by the musculocutaneous nerve, is, according to Quain, normally supplied by the *upper external cutaneous branch of the musculospiral nerve (nervus cutaneus brachii posterior of Toldt)*.

⁴²⁹ *Cutaneous Branches of the Musculospiral Nerve* (Fig. 1256, p. 824).—These are usually described by English anatomists as three in number: (1) *internal cutaneous branch of the musculospiral nerve (posterior internal, or superior branch, according to Macalister)*, arising in the axilla, often in common with the nerve to the inner head of the triceps (see note ⁴²⁷ above), and supplying the skin over the long head of the triceps muscle and behind the cutaneous area of the intercostohumeral nerve—this branch is identified by Quain with the *n. cutaneus brachii posterior* of the Continental nomenclature; (2) *the upper external cutaneous branch*, which supplies the lower half of the upper arm on its outer and anterior aspects (see Figs. 1270 and 1271, p. 835); (3) *the lower external cutaneous branch* (this branch and the previous one, which often arise in common from the main trunk, are called by Macalister the *posterior external cutaneous branch of the musculospiral nerve*), which supplies the outer half of the back of the forearm. Toldt ignores entirely the *internal cutaneous offset* of English anatomists, and describes two cutaneous branches only of the musculospiral nerve: the *nervus cutaneus brachii posterior*, the *upper external cutaneous branch*, and the *nervus cutaneus antibrachii dorsalis*, the *lower external cutaneous branch*, of the musculospiral nerve. As far, then, as Toldt's use of the German official nomenclature is concerned, Quain's identification of the *nervus cutaneus brachii posterior* with the *internal cutaneous branch of the musculospiral nerve* is erroneous.

⁴³⁰ *Radial Nerve* (Fig. 1257, p. 825).—It must be carefully noted that the *nervus radialis* of Continental anatomists is the *musculospiral* trunk of English writers. Just above the elbow this trunk divides into two terminal branches; one of these, *ramus superficialis nervi radialis* in the Continental nomenclature, a purely cutaneous nerve, is the *radial nerve* of English authors; while the other, *ramus profundus nervi radialis*, the muscular nerve of the back of the forearm, is known in England as the *posterior interosseous nerve* (see note ⁴³¹ below).

⁴³¹ *Posterior Interosseous Nerve* (*Ibid.*).—This name is by English anatomists applied to the nerve designated *ramus profundus nervi radialis* by Toldt (see note ⁴³⁰ above); and the name *nervus interosseus (anibrachii) dorsalis* is used on the Continent in a more restricted sense, as shown by the following quotation (Von Langer and Toldt, *op. cit.*, p. 657): "The *ramus profundus nervi radialis* winds round the neck of the radius, between the layers of the supinator radii brevis muscle, and is for the most part distributed to the muscular bellies in the upper part of the back of the forearm: one offset only, designated *nervus interosseus dorsalis*, extends as far down as the wrist-joint, supplying the three extensors of the thumb and the capsule of the wrist-joint." The pseudo-ganglionic enlargement of the lower end of this nerve is well shown in Fig. 1257.

⁴³² *Nerve to the Anconeus Muscle* (*Ibid.*).—According to both Quain and Macalister, this nerve descends to its destination within the substance of the *inner head* of the triceps muscle; but alike in the marginal description and that at the foot of Fig. 1257 the part of the triceps in which the course of the nerve to the anconeus muscle has been traced is called *caput laterale musculi tricipitis brachii*. As a matter of fact, though this part of the triceps is situated on the outer aspect of the muscle, all the fibres arising from the posterior surface of the humerus below and internal to the spiral groove, and even from the back of the lower part of the external intermuscular septum, are regarded as belonging to the *internal or deep head* of the triceps, though the outermost of these fibres pass inwards to their insertion into the outer margin of the common tendon. Some of these outer fibres of the internal head are usually continued below into the fibres of the anconeus muscle, and it is under cover of these fibres that the branch of the musculospiral nerve which supplies the latter muscle passes to its destination.

⁴³³ (Fig. 1258, p. 826).—By Quain the terminal branches of the ulnar nerve are termed *superficial part* and *deep part*, respectively; in the text, however, I have followed the author's nomenclature in using the terms *superficial branch* and *deep branch*. More distinctive names would be *superficial terminal* and *deep terminal branch of the ulnar nerve*.

⁴³⁴ *Palmar Digital Nerves* (Fig. 1260, p. 828).—As in the case of the palmar digital arteries and veins, the author distinguishes between the digital nerves in the palm of the hand (before division) and the digital nerves on the palmar surfaces of the fingers (after division) as *nervi digitales volares communes* and *nervi digitales volares propriae*, respectively. This distinction is ignored by Quain and Macalister, but I have in the text named the palmar digital nerves before division (common) *palmar digital nerves*, and after division *collateral palmar digital nerves*.

⁴³⁵ *Perforating Branches of the Deep Part of the Ulnar Nerve* (Fig. 1261, p. 829).—The twig to which in Fig. 1261 the name of *perforating branch* is given has no Latin name in the author's terminology, being called merely (in German) *offset to the dorsal surface of the metacarpus*. Quain, however, writes (*op. cit.*, vol. iii., part ii., p. 300): "Rauber describes small *perforating branches*, which accompany the superior perforating arteries in

the interosseous spaces, and join the terminal filaments of the posterior interosseous nerve."

⁴³⁶ **Anterior Brachial Cutaneous Branches of the Internal Cutaneous Nerve* (Fig. 1262, p. 830).—Macalister gives no special name to these branches; and Quain calls them merely *branches to the integument of the arm*, a name insufficiently distinctive. I have therefore used in the text a literal translation of the Latin name employed by the author, *rami cutanei brachii anteriores nervi cutanei antibrachii medialis*.

⁴³⁷ **Ulnar Communicating Branch* (Fig. 1265, p. 831).—Describing the *dorsal digital branches* of the radial nerve (*ramus superficialis nervi radialis*—see note ⁴³⁰ above), Von Langer and Toldt write (*op. cit.*, p. 687): "A fine branch of communication passes from the nerve to the middle finger to the corresponding offset of the ulnar nerve." Quain describes this communication between the *dorsal digital branches* of the radial and ulnar nerves respectively, but gives no special name to the communicating branches; and Macalister writes (*op. cit.*, p. 299): "A *communicating branch* (of the radial nerve) joins the dorsal branch of the ulnar, and with it gives a common supply to the cleft between the middle and ring fingers."

⁴³⁸ *Sacral and Pudic Plexuses* (Fig. 1272, p. 836).—In the description of the sacral plexus a division is sometimes made into two subordinate plexuses. The larger upper part, which ends in the great sciatic nerve and gives off the other branches to the limb, is distinguished as the *sciatic plexus* (*plexus ischiadicus*), while the smaller lower part, including the pudic nerve together with the visceral and muscular branches of the third and fourth sacral nerves, is designated the *pudic plexus* (*plexus pudendus*) (Quain, *op. cit.*, vol. iii., part ii., p. 324). It must be observed that the author uses the term *plexus sacralis*, not in the wider sense of the above quotation, but to denote merely what is there called the *sciatic plexus*. This latter term, however, is not current in England, and I have therefore used the name *sacral plexus* as the English equivalent of the *plexus sacralis* of the author. The *pudic plexus* (*plexus pudendus*) comprises a part of the third and nearly all the fourth sacral nerve; its branches are, in addition to the large *pudic* trunk, *muscular branches* to the levator ani and coccygeus muscles and to the external sphincter of the anus (*haemorrhoidal or perineal branch*), and *visceral branches* (*middle hemorrhoidal, inferior vesical, and vaginal nerves*). A small filament from the fourth sacral nerve combines with the fifth sacral nerve and the coccygeal nerve to form what is sometimes named the *coccygeal plexus*, and this latter gives rise to the *anococcygeal* or *subcaudal nerve*. The pudic and coccygeal plexuses as described above are treated by Macalister as a single plexus, to which he gives the name of *pudendo-anal plexus*.

⁴³⁹ *Rami Cutanei Femoris Anterioris* (Fig. 1273, p. 837).—"Among the cutaneous offsets of the anterior crural or femoral nerve are the **anterior cutaneous branches of the thigh*. Two to four in number, they perforate the deep fascia at different levels, and ramify on the front of the thigh; one of these branches accompanies the femoral portion of the internal saphenous vein" (Von Langer and Toldt, *op. cit.*, p. 692). Under this name of **anterior cutaneous branches of the thigh*, the author includes the *middle cutaneous and internal cutaneous nerves* of English anatomists. As far as possible, I have in the text discriminated between these nerves, in accordance with the English nomenclature.

⁴⁴⁰ *Divisions of the Obturator Nerve* (Fig. 1275, p. 839).—The *anterior or superficial part* of the obturator nerve (*ramus anterior nervi obturatorii*) and the *posterior or deep part* of the obturator nerve (*ramus posterior nervi obturatorii*) are by Macalister called *anterior obturator nerve* and *posterior obturator nerve*, respectively.

⁴⁴¹ (*Ibid.*) The cutaneous branch of the anterior crural nerve mentioned in the text may be derived either from the *internal cutaneous* or the *internal saphenous* branch of the anterior crural or femoral nerve, for communicating offsets from both these nerves combine with the cutaneous branch of the obturator nerve to form an interlacement beneath the lower end of the sartorius muscle.

⁴⁴² *N. Tibialis* (Fig. 1276, p. 840).—In the author's nomenclature, the name *nervus tibialis* is given to the larger of the two terminal branches of the *great sciatic nerve* from the point of division of the parent trunk until the **tibial nerve* itself divides (usually just below the internal annular ligament of the ankle) into the *internal* and *external plantar nerves*. In England, however, the upper part of this nerve, as far as the lower border of the popliteus muscle, is known as the *internal popliteal nerve*, and for the rest of its course it receives the name of *posterior tibial nerve*. Macalister speaks of the terminal branches of the *great sciatic nerve* as the *peroneal* and *popliteal nerves*, respectively; but in his terminology also the latter nerve changes its name to *posterior tibial* at the lower border of the popliteus muscle.

⁴⁴³ *Inferior Pudendal Nerve* (Fig. 1277, p. 841).—In the specimen shown in Fig. 1277 the name *inferior pudendal nerve* (*rami perineales nervi cutanei femoris posterioris* in the author's terminology) is attached to two distinct branches of the small sciatic trunk. These two branches represent the principal branches of distribution of the *inferior pudendal nerve* when the nerve is normal. This variety is frequently met with.

⁴⁴⁴ *Calcaneoplantar Nerve* (Fig. 1279, p. 843).—According to Quain (*op. cit.*, vol. iii., part ii., p. 333), "the calcaneoplantar nerve is given off by the posterior tibial in the lower part of the leg, and becomes superficial by piercing the internal annular ligament. It divides into *internal calcaneal branches* which ramify in the integument on the inner side of the heel, and *plantar cutaneous branches* which supply the skin of the inner and hinder part of the sole." The *rami calcanei mediales* of Toldt include the *plantar cutaneous* as well as the *internal calcaneal branches* of the calcaneoplantar nerve; thus, in Fig. 1279, of the branches labelled *internal calcaneal*, the anterior set are really the *plantar cutaneous branches* of English anatomists.

⁴⁴⁵ **Interosseous Nerve of the Leg* (*Ibid.*).—"The nerve to the popliteus muscle, which arises from the internal popliteal nerve near the lower end of the popliteal space, gives off the slender *nervus interosseus cruris*; this descends partly in the substance of the interosseous membrane, partly on the posterior surface of this membrane, which it supplies, giving fine filaments also to the periosteum of the tibia, while its terminal offsets supply the inferior tibiofibular articulation and the ankle-joint" (Von Langer and Toldt, *op. cit.*, pp. 694, 695). In England this small nerve is not usually dignified by the name of **interosseous nerve of the leg*. Quain and Macalister merely state that the *nerve to the popliteus muscle* gives a branch to the interosseous membrane.

⁴⁴⁶ *External Terminal Branch of the Anterior Tibial Nerve* (Fig. 1281, p. 845).—The branch in Fig. 1281 labelled *muscular branch to the extensor brevis digitorum pedis muscle*, together with the branches labelled *offsets* to the *tarsal joints*, represent what is usually known in English anatomical nomenclature as the *external terminal branch* of the *anterior tibial nerve* (the *internal terminal branch* being that which supplies the dorsal digital nerves of the outer side of the great toe and the inner side of the second toe). The *external terminal branch* resembles the *posterior interosseous nerve* of the forearm in presenting, as a rule, a pseudo-

ganglionic enlargement. This is, however, not shown in Fig. 1281.

⁴⁴⁷ *Jugular Ganglion* (Fig. 1296, p. 858).—The *upper ganglion* or *ganglion of the root* of the *pneumogastric* or *vagus nerve*, the *ganglion jugulare* of the official German nomenclature, is, owing to its situation in the jugular foramen, sometimes known in England also by the name of *jugular ganglion*. The name is, however, better avoided, since its employment may lead to confusion with the *upper ganglion* of the *glossopharyngeal nerve*, which is always known in England by the name of *jugular ganglion* (*ganglion superius nervi glossopharyngei* in the official German nomenclature; sometimes called *Ehrenritter's ganglion* by German writers). This latter is also shown in Fig. 1296, just below the Roman figure IX.

⁴⁴⁸ *Visceral Arches and Visceral Clefts* (Fig. 1296, p. 858).—In the German original these structures are called *Kiemensäulen* and *Kiemenspalte*, respectively; literally, *branchial arch* and *branchial cleft*. This name depends on the respiratory function of these structures in the primitive ancestral vertebrates; but since this function is now obsolete, the names used in the text are to be preferred. In England also, however, some anatomists call the clefts *branchial clefts* or *gill-slits*, and of the arches, while the first is the *mandibular arch*, and the second the *hyoid arch*, the remainder are sometimes called *branchial arches*. The *first or mandibular visceral arch* sends forward on each side a process from which the upper jaw is formed; this is known as the *maxillary process* (*Oberkieferfortsatz*). The distal portion of the first arch, from which the lower jaw is formed, is by Toldt distinguished as the **mandibular process* (*Unterkieferfortsatz*), but this name is not used by Quain. (The primitive cartilage of the lower jaw is usually called *Meckel's cartilage*.)

⁴⁴⁹ *Nasal Nerve* (Fig. 1298, p. 859).—In the German official nomenclature, the *nervus nasociliaris* gives off the *nervus ethmoidalis anterior* through the anterior ethmoidal foramen to the nasal cavity. These form the proximal and distal portions, respectively, of the *nasal nerve* of English authors. The latter is known also as the *oculonasal* and as the *nasociliary nerve*.

⁴⁵⁰ **Posterior Nasal Branches* (Fig. 1298, p. 859).—The **rami nasales posteriores* of the official German nomenclature include the following branches in Quain's terminology: (1) the *nasopalatine nerve*; (2) the small *upper nasal branches* of Meckel's ganglion; (3) the *inferior nasal branches* of the large or anterior palatine nerve.

⁴⁵¹ *Canalis Incisivus* (Fig. 1302, p. 862).—The author appears to use this term indifferently of the *canals of Scarpa* and of the *canals of Stensen*. The former transmit the nasopalatine nerves; the latter, the palatine branches of the nasopalatine arteries.—See Macalister, *op. cit.*, p. 635.

⁴⁵² *Petrosal Nerves* (Fig. 1303, p. 863).—The *great superficial petrosal nerve* (sometimes called the *white portion* of the *Vidian nerve*) and the *small superficial petrosal nerve* (*long root* of the *otic ganglion*) are identical respectively with the *nervus petrosus superficialis major* and *nervus petrosus superficialis minor* of the German official nomenclature. Of the *deep petrosal nerves* of English anatomists, the *great deep petrosal nerve* (sometimes called the *grey portion* of the *Vidian nerve*) is in the German nomenclature known as the *nervus petrosus profundus* without further qualification. The *small deep petrosal nerve* (a branch from the tympanic plexus to the internal carotid plexus) must be identified with the *nervus caroticotympanicus superior* of the German nomenclature (see Fig. 1317, p. 874, and Fig. 1328, p. 886). Finally, the *external superficial petrosal nerve*, an occasional branch connecting the geniculate ganglion with the sympathetic on the middle meningeal artery, is apparently ignored by Toldt.

⁴⁵³ *Sublingual Nerve* (Fig. 1304, p. 864).—Macalister distinguishes by this name "a branch which passes external to and supplies the sublingual gland, the gums, and the mucosa beneath the tongue" (*op. cit.*, p. 599). This is the *nervus sublingualis* of the German official nomenclature. Quain says merely that "some delicate filaments are distributed to the sublingual gland."

⁴⁵⁴ *Deep Temporal, Buccal, and Masseteric Nerves* (Fig. 1305, p. 865).—The arrangement of these branches of the inferior maxillary nerve being a somewhat variable one, different authors have accepted different arrangements as the normal. Quain describes the *deep temporal nerves* as usually three in number, the *anterior* being given off by the *buccal nerve* after it has perforated the external pterygoid muscle, the *middle* arising independently, and the *posterior* generally conjoined with the *masseteric nerve*. According to Von Langer and Toldt (*op. cit.*), the *buccal nerve* (*n. buccinatorius*) consists of sensory fibres only, and the *deep temporal nerves*, two only in number, *anterior* and *posterior*, and the *masseteric nerve* are independent branches of the inferior maxillary nerve. Macalister also describes two *deep temporal nerves* only, the *anterior* arising a little in front of the *buccal nerve*, and the *posterior* dividing into two branches, the *masseteric* and the *posterior temporal*. A middle *deep temporal nerve* is, however, shown by Toldt in Fig. 1320, p. 877. In the text I have not attempted to harmonize these discrepancies, but have followed Toldt's nomenclature.

⁴⁵⁵ **Rami Nasales Interni* (Fig. 1306, p. 866).—The **internal nasal branches* of the *infra-orbital nerve*, supplying the skin just within the margin of the nostril, are not distinguished by Quain from the *lateral nasal branches* of this nerve.

⁴⁵⁶ *Mental and Inferior Labial Branches* (Fig. 1306, p. 866).—"The *mental or labial nerve*," according to Quain (*op. cit.*, vol. iii., part ii., p. 247), "emerging from the bone by the mental foramen, divides beneath the depressor anguli oris into three parts—an *inferior*, which descends to the integument of the chin, and two *superior*, which ascend to the skin and mucous membrane of the lower lip." By this author, however, these branches are not distinguished by the names used in the text.

⁴⁵⁷ *Divisions of the Inferior Maxillary Nerve* (Fig. 1307, p. 867).—After giving off the *recurrent* or *middle meningeal branch*, the inferior maxillary nerve divides, about $\frac{1}{2}$ inch below the foramen ovale, into two primary branches, called by Quain the *small, anterior, or upper portion*, and the *large, posterior, or lower portion*, respectively; and by Macalister, *superior branch* and *inferior branch* respectively. The *large or posterior portion*, chiefly sensory in function, divides into three trunks, the *auriculotemporal, lingual, and inferior dental nerves*. The *small or anterior portion*, chiefly motor, gives, in addition to the *buccal nerve* (sensory in function), the nerves to the *temporal, masseter, and external pterygoid muscles* (see above, note ⁴⁵⁴); for this reason it is known in German as the *nervus masticatorius*. Functionally, the *internal pterygoid nerve* belongs also to the **masticatory nerve*; usually, however, this branch arises from the undivided trunk.

⁴⁵⁸ *Sphenomaxillary Muscle* (Fig. 1309, p. 868).—"In the region of the sphenomaxillary fissure, incorporated with the orbital periosteum, there is a layer of smooth muscular fibres, having the appearance of a greyish-red mass. This is the so-called *musculus orbitalis*" (Von Langer and Toldt, *op. cit.*, p. 783). This layer of unstriped muscular tissue was first described by Müller, and sometimes goes by the name of *Müller's muscle*. But Müller also described a layer of unstriped muscular tissue met with in each eyelid, and these layers also go by the name of *Müller's muscle*. (By Toldt they are called *Mm. tarsales superior*

et inferior—see Fig. 1386, p. 910, and note ⁵⁰⁴ below.) Gowers, for instance, writes ("Diseases of the Nervous System," 2nd ed., vol. ii., pp. 886, 887): "The unstriated muscular fibres of Müller, which are innervated by the sympathetic and run from the eyelid to the membranous lining of the orbit, are generally believed to be capable, by their contraction, of causing prominence of the eyeball." On the other hand, when Fagge, writing also on *exophthalmos*, states: "A third hypothesis is that exophthalmos may in part be caused by contraction of Müller's non-striated orbital muscle" ("Medicine," 2nd ed., vol. i., p. 1011), he refers to the layer of smooth muscular fibres bridging over the sphenomaxillary fissure. To avoid this confusion, the use of the term *Müller's muscle* should be abandoned, and the *musculus orbitalis* of the German official nomenclature should be denoted in England by the name of *sphenomaxillary muscle*. (This name is used by Quain—*op. cit.*, vol. iii., part ii., p. 4, footnote.)

⁴⁵⁹ *Superficial Temporal Nerve* (Fig. 1313, p. 870).—According to Quain's nomenclature, the *auriculotemporal nerve*, on emerging from beneath the parotid gland and passing upwards over the zygoma, becomes the *superficial temporal nerve*. In the German official nomenclature, the nerve remains the *nervus auriculotemporalis* until it breaks up into the *rami temporales superficiales* shown in Fig. 1313. The *superficial temporal nerve* of Quain is by Macalister named the *terminal branch* of the *auriculotemporal nerve*.

⁴⁶⁰ **Ansa Cervicalis Superficialis* (Fig. 1313, p. 870).—I mark this term with an asterisk because it is used neither by Quain nor by Macalister. Both of these authors describe the loop or loops of communication, on the outer surface of the sternocleidomastoid muscle, between the superficial cervical nerve and the cervical or inframaxillary branch of the facial nerve, but neither denotes the communication by any distinctive name. The drawback to the use in England of the Continental name of *ansa cervicalis superficialis* is that the name *ansa cervicalis* is already in use in this country to denote the loop of communication known on the Continent as the *ansa hypoglossi* (see Fig. 1249, p. 817, and Fig. 1320, p. 877). All possibility of confusion would be avoided if the loop of communication between the *facial* and the *superficial cervical nerves* were to be termed *ansa cervicofacialis*, but as this name is a neologism I have not ventured to incorporate it in the text.

⁴⁶¹ *Pes Anserinus* (Fig. 1314, p. 871).—This is the name usually employed in England to denote the radiating plexus formed in the parotid gland and on the side of the face by the branches of the facial nerve as they pass to their destination. In the German official nomenclature this structure is known as the *plexus parotidus*, the name *pes anserinus* being given on the Continent to an entirely different structure, viz., the aponeurotic expansion of the tendon of insertion of the sartorius muscle.—See footnote to p. 351 in Part III.

⁴⁶² *Inferior or Recurrent Laryngeal Nerve* (Fig. 1315, p. 872).—In the German official nomenclature this nerve, at its first origin from the vagus trunk, is known as the *nervus recurrens*; only after it has furnished numerous *tracheal* and *oesophageal* branches does the *terminal branch* (as it is esteemed) of the *nervus recurrens* receive the name of *nervus laryngeus inferior*. In England the nerve is called indifferently *inferior laryngeal* or *recurrent laryngeal nerve* throughout its whole course.

⁴⁶³ (Fig. 1315, p. 872).—Sometimes known in England also as the *jugular ganglion* of the vagus nerve. (Macalister makes use of this name.) It is better, however, to reserve the name *jugular ganglion* for the upper ganglion of the glossopharyngeal nerve.—See also note ⁴⁴⁷ above.

⁴⁶⁴ **Esophageal Cords, Anterior and Posterior* (Fig. 1315, p. 872).—As this name is used neither by Quain nor by Macalister, I quote the following passage from Von Langer and Toldt (*op. cit.*, p. 716): "The name of *chorda æsophagaæ, anterior et posterior*, is given to two nervous trunks, one of which descends along the anterior, the other along the posterior surface of the œsophagus. These trunks are connected by means of numerous offsets, which, as they pass from one trunk to the other, branch and reunite to form the *plexus æsophagi*. From this plexus arise a large number of *rami æsophagei* for the thoracic and abdominal portions of the œsophagus. The œsophageal cords are the continuations of the trunks of the pneumogastric or vagus nerves; they are differentiated from these latter by the fact that each cord receives from the other numerous branches of communication; but, notwithstanding this, the *posterior* œsophageal cord must be regarded as the continuation of the *right pneumogastric*, and the *anterior* œsophageal cord as the continuation of the *left pneumogastric* nerve. This peculiar relation of the œsophageal cords to the œsophagus is brought about by the rotation of the stomach which takes place during intra-uterine life, as a result of which the primitive left side of the stomach becomes the anterior surface, and the primitive right side becomes the posterior surface of that organ.

⁴⁶⁵ *Gastric Plexus* (Fig. 1315, p. 872).—Quain and Macalister both speak of the *gastric plexus* as a single whole. Toldt, on the other hand, describes four separate plexuses, *anterior, posterior, superior, and inferior* gastric plexuses. The difference is not one of much importance. It is true that the nerve-supply of the stomach may be said to reach that organ in four sets of branches: to the front of the stomach from the *left pneumogastric*, to the back from the *right pneumogastric nerve* (see note ⁴⁶⁴ above); to the small curvature from the solar plexus by the branches that accompany the coronary artery of the stomach and form the *coronary plexus*, to the great curvature (also primarily from the sympathetic) by the *right and left gastro-epiploic plexuses*. But when we remember that not only do the nerves from these different sources intermingle freely on the walls of the stomach, but further that, by means of the *celiac branches* of the vagus (see note ⁴⁶⁶ below), vagal fibres are incorporated with many (if not all) of the branches of the solar plexus, it seems that the *gastric plexus* can be more usefully regarded as forming a single whole.

⁴⁶⁶ *Celiac Branches* (Fig. 1315, p. 872).—Quain, in his account of the *gastric branches* of the pneumogastric nerve, remarks that a large portion of the right nerve passes to the solar, splenic, and left renal plexuses of the sympathetic; but he does not mention the *celiac branches* more particularly, nor is this name used by Macalister. Von Langer and Toldt (*op. cit.*, p. 717) state that of the fibres of the **posterior* œsophageal cord (*right pneumogastric or vagus nerve*—see note ⁴⁶⁴ above) a small part only passes in the form of *gastric branches* to the *posterior gastric plexus* (see note ⁴⁶⁵ above); "the greater part of the fibres of this cord pass as *celiac branches* along the coronary artery of the stomach to the *celiac axis*, where they join the *semilunar ganglia*."

⁴⁶⁷ *Jugular Ganglion* (Fig. 1316, p. 873).—This name, here given to the *ganglion superius nervi glossopharyngici* of the Continental nomenclature, is by some English authors given to the *upper ganglion* or *ganglion of the root of the pneumogastric nerve*. (See note ⁴⁶⁷ above.) The jugular ganglion of the glossopharyngeal nerve is known also as *Ehrenritter's ganglion*.

⁴⁶⁸ *Caroticotympanic Nerves* (Fig. 1317, p. 874).—Quain writes (*op. cit.*, vol. iii., part ii., p. 260): "The communicating branches (of the tympanic nerve) are, in addition to the small superficial petrosal nerve with its filament of union with the facial, one or

two twigs (*caroticotympanic*) which pass downwards and forwards through the anterior wall of the tympanum to the carotid canal and join the sympathetic on the carotid artery, and the *small deep petrosal nerve* which runs forwards in a minute canal in the substance of the processus cochleariformis and enters the foramen lacerum, where it joins the carotid plexus of the sympathetic, or sometimes one of the large petrosal nerves."—If I am right in identifying the *nervus caroticotympanicus superior* with the *small deep petrosal nerve* of English authors (see note ⁴⁶² above)—Von Langer and Toldt's description is not sufficiently minute to make this point quite clear—the *nervus caroticotympanicus inferior* should perhaps be called the *caroticotympanic nerve* without further qualification.

⁴⁶⁹ **Jugular Nerve* (Fig. 1317, p. 874).—Quain describes this nerve, but uses only the name used on the Continent, *N. jugularis* (and that in a parenthesis merely). He writes: "Another branch [of the superior cervical ganglion], which is directed upwards from the ganglion, divides at the base of the skull into two filaments, one of which ends in the petrosal ganglion of the glossopharyngeal nerve; while the other, entering the jugular foramen, joins the ganglion of the root of the pneumogastric."—*Jugular nerve*, the English equivalent of the *nervus jugularis* of the official German nomenclature, is a name at once distinctive and appropriate, and may well be adopted.

⁴⁷⁰ (Fig. 1317, p. 874).—The name *musculus hyopharyngeus* is used here by Toldt, but nowhere else in this work, to denote the *middle constrictor of the pharynx*. The parts of this muscle attached respectively to the great and the small corns of the hyoid bone are, however, often known as the *ceratopharyngeus* and *chondropharyngeus* muscles. The *thyropharyngeus* muscle is the upper part of the *inferior constrictor of the pharynx*.—See Fig. 706, p. 433, in Part III., and note 1 to same page.

⁴⁷¹ **Cardiac Plexus* (Fig. 1321, p. 878).—English anatomists make a distinction, which is ignored by Toldt, between a *superficial* and a *deep cardiac plexus*. The *superficial cardiac plexus* lies in the concavity of the arch of the aorta, between the ligamentum arteriosum and the right pulmonary artery; it receives the left superior cardiac nerve (of the sympathetic system) and the lower cervical cardiac branch of the left pneumogastric nerve; it contains the *ganglion of Wrisberg* (see Fig. 1330, p. 887). The *deep cardiac plexus* lies behind the arch of the aorta, in front of the lower end of the trachea, and above the bifurcation of the pulmonary artery; much larger than the superficial cardiac plexus, it receives all the cardiac nerves with the exception of the two mentioned above.

⁴⁷² **Lowest Cardiac Nerve* (Fig. 1326, p. 884).—This nerve is not mentioned by Quain or by Macalister. It is described in the following terms by Von Langer and Toldt (*op. cit.*, p. 721): "The *nervus cardiacus minus* is the lowest of the cardiac nerves. It arises from the first thoracic ganglion, and, having joined the inferior cardiac nerve, passes to the cardiac plexus. When the inferior cervical ganglion and the first thoracic ganglion are conjoined, the lowest and the inferior cardiac nerves form a common trunk, which arises from the ganglion by two or by three roots."

⁴⁷³ **Sinuvertebral Nerves* (Fig. 1329, p. 886).—Quain writes (*op. cit.*, vol. iii., part ii., p. 278): "Before dividing [into anterior and posterior primary divisions] each spinal nerve gives off a small *recurrent* or *meningeal* branch, which is joined by a filament from the communicating cord between the anterior division of the nerve and the sympathetic, and then runs inwards through the intervertebral foramen to the spinal canal, where it is distributed to the vertebral and ligaments, the bloodvessels of the canal, and to the dura mater (Luschka, Rüdinger)." To the

intraspinal nerves formed in this manner by the union of the recurrent or meningeal branches of the spinal nerves with the sympathetic filaments from the rami communicantes, Toldt gives the name of *nervi sinuvertebrales*, a term used neither by Quain nor by Macalister.

⁴⁷⁴ *Celiac Plexus* (Fig. 1331, p. 888).—The term *plexus celiacus* is used by the author in a comprehensive sense, equivalent to the *solar* or *epigastric plexus* of English writers. In England the term *celiac plexus* is used to denote the anterior and upper part only of the solar plexus, which ensheathes the celiac axis, and subdivides, with that vessel, into the *coronary*, *hepatic*, and *splenic plexuses*.

⁴⁷⁵ *Smallest Splanchnic Nerve* (*Ibid.*).—The renal branch of the small splanchnic nerve is sometimes represented by a separate branch from the last thoracic ganglion to the renal plexus. This nerve was termed by Walter *nervus renalis posterior*, but is generally known in England as the *smallest splanchnic nerve*.

⁴⁷⁶ *Vesical Nerves* (Fig. 1333, p. 890).—The nerves in Fig. 1333 to which the names of *superior* and *inferior vesical nerves* are given are the branches proceeding from the *vesical plexus* to the upper and lower hemispheres, respectively, of the urinary bladder. The *inferior vesical nerves* shown in Fig. 1272, p. 836, on the other hand, are branches of the fourth sacral nerve (*pubic plexus*, see note ⁴³⁸ above) destined for the bladder, for the most part by way of the vesical plexus of the sympathetic.

⁴⁷⁷ *Hypogastric and Pelvic Plexuses* (*Ibid.*).—In the author's nomenclature the *plexus hypogastricus* is said to divide below into right and left portions, which still go by the name of *plexus hypogastricus*. In Quain's nomenclature the term *hypogastric plexus* denotes the upper median portion only of the *plexus hypogastricus* of Toldt, the paired lower portions being termed by Quain *right and left pelvic or inferior hypogastric plexuses*.

⁴⁷⁸ *Perichoroidal Space and Lamina Suprachoroidea* (Fig. 1337, p. 893).—In describing the lymph space between the sclerotic and the choroid, neither Quain nor Macalister employs the name *spatium perchoroideale* or its English equivalent, *perichoroidal space*, but these names are used by other English authorities. In describing parts of the eye Latin names are most commonly used, *lamina suprachoroidea*, for example, rather than *suprachoroidal membrane*, etc.

⁴⁷⁹ *Circular Ciliary Muscle* (*Ibid.*).—The *circular fibres* of the ciliary muscle, forming a ring round the insertion of the iris, make up the *circular ciliary muscle* of Müller, which is well developed in hypermetropic eyes, but atrophied, or even wanting, in myopic eyes.

⁴⁸⁰ *Zonule of Zinn or Suspensory Ligament of the Lens* (*Ibid.*).—The zonule of Zinn extends from the *ora serrata* forwards and inwards over the ciliary body, and thence inwards to be attached to the capsule of the lens. The inner free portion only of this structure is strictly entitled to the name *suspensory ligament of the lens*, but as this ligament is the functionally important part of the zonule of Zinn, and as the term *suspensory ligament of the lens* finds no place in Toldt's nomenclature, I have in the text rendered the term *zonula ciliaris* (*Zinni*) as *zonule of Zinn or suspensory ligament of the lens*. The fibre *zonulæ* are the radiating meridional fibres of which the zonule is made up. "Between the fibres of the zonule are numerous interspaces, the *spatia zonularia* (*zonular spaces*), which communicate with the posterior chamber, and are therefore filled with aqueous humour. A closed canal, such as was formerly believed to exist in the substance of the suspensory ligament of the lens, encircling the equator of the lens, known as the *canal of Petit*, has, however, no real existence" (Von Langer and Toldt, *op. cit.*, p. 771).

⁴⁸¹ *Rima Cornealis* (*Ibid.*).—The transition from the con-

nective-tissue elements of the sclerotic into those of the cornea takes place along a sharply-defined circular zone in such a manner that the tissue of the sclerotic overlaps the margin of the corneal tissue, now in front, now behind, and thus the anterior margin of the sclerotic is, as it were, grooved to receive the corneal margin. This connection between the two structures receives the name of *rima cornealis*" (Von Langer and Toldt, *op. cit.*, p. 756). Both Quain (*op. cit.*, vol. iii., part iii., p. 17) and Macalister (*op. cit.*, p. 668) describe the connexion between the sclerotic and the cornea in similar terms, the latter writer saying, "In section the sclerotic seems to overlay the cornea, as the bezel overlaps the glass in a watch"; but neither of these authorities employs the name *rima cornealis*.

⁴⁸² **Anulus Ciliaris* and **Orbicularis Ciliaris* (Figs. 1338, 1339, p. 894).—These terms are not used by Quain, and I therefore quote definitions of their meaning from Von Langer and Toldt: "The middle coat of the eyeball, *tunica vasculosa oculi* . . . consists of two portions: a posterior and larger, the *choroid* (coat), and an anterior and smaller, the *iris*. The boundary-line between these two portions, which in position corresponds to the **rima cornealis* [see note ⁴⁸¹ above], is indicated on the convex surface of the middle coat when the outer coat has been removed by the anterior margin of a prominent pale blue tinted ring, the **annulus ciliaris*. Along this boundary-line the middle and outer coats of the eye are more firmly connected with one another than is elsewhere the case" (*op. cit.*, p. 760). "The ciliary body is separated from the region of the *ora serrata* of the retina by a narrow ring-shaped zone of the choroid, usually somewhat darker in colour than the rest, known as the **orbicularis ciliaris*. We thus recognise three regions in the choroid: an anterior, the *ciliary body*, a middle, the **orbicularis ciliaris*, and a posterior (much larger than the others), the *smooth portion* of the choroid. These three portions are clearly differentiated one from another by the arrangement of their bloodvessels" (*op. cit.*, p. 766).

⁴⁸³ *Plexus Ganglionis Ciliaris* (Fig. 1340, p. 894).—The *ciliary ganglionated plexus* lies within the substance of the ciliary muscle. The ciliary nerves form two other ganglionated plexuses in connexion with the middle coat of the eye, one on the outer surface of the choroid, and the other within the substance of the iris. See Quain, *op. cit.*, vol. iii., part iii., p. 35.

⁴⁸⁴ **Ciliary Folds* (Figs. 1342, 1343, p. 895).—"In between the well-developed ciliary processes are small, slightly projecting eminences, having the same radial disposition as the processes. These are known as the *plicæ ciliares*" (Von Langer and Toldt, *op. cit.*, p. 760). These structures are not mentioned by Quain or Macalister.

⁴⁸⁵ *Corona Ciliaris* and *Corpus Ciliare* (Figs. 1341 to 1343, p. 895).—"The ring of ciliary processes surrounding the iris constitutes a whole the *corona ciliaris*. The anterior portion of the choroid (with the ciliary processes) constitutes what is known as the *ciliary body* (*corpus ciliare*)" (Von Langer and Toldt, *op. cit.*, p. 760).

⁴⁸⁶ *Layers of the Choroid* (Fig. 1344, p. 895).—The choroid is bounded both externally and internally by non-vascular membranes. The external layer, similar to the *lamina fusca* of the sclerotic (from which it is separated by the perchoroidal lymph space) is known as the *suprachoroidal membrane* or *lamina suprachoroidea* (see note ⁴⁷⁸ above). The internal layer, adjacent to the pigmentary layer of the retina, structureless and transparent, is generally known in England as the *membrane of Bruch*; but sometimes, from its glassy appearance, as the *lamina vitrea* (in German, *Glas haut*); in the official German nomenclature it is termed the *lamina basalis*. Between the suprachoroidal mem-

brane and the membrane of Bruch is the richly vascular *choroid proper*, which itself consists of two strata—an *outer*, containing the larger bloodvessels, and an *inner*, containing the capillary ramifications. The outer, taking its name from the large venous plexuses in its substance, is known as the *vascular layer* or *lamina vasculosa*. The inner, capillary layer is generally spoken of both in England and Germany by the Latin name of *lamina* (or *tunica*) *choriocapillaris*, but is also known as the *tunica Ruyshiana*. Between the vascular layer and the choriocapillaris is an intermediate layer of connective tissue rich in elastic fibres and containing hardly any pigment; this layer, unimportant in man, is the tissue which in some mammals is so developed as to produce the appearance known as the *tapetum*.

⁴⁵⁷ *Annulus Iridis, Minor et Major, and the Crypts and Contraction-Folds of the Iris* (Figs. 1346 to 1348, p. 896).—"In the anterior surface of the iris a peculiar moulding is to be distinguished, partly dependent on the arrangement of its bloodvessels. First of all, we note at a distance of about 1 millimetre ($\frac{1}{2}$ inch) from the pupillary margin of the iris, and parallel therewith, a somewhat sinuous little ridge, by which the iris is divided into two zones, the smaller of which, adjoining the pupil, is known as the *pupillary zone*, *annulus iridis minor*, while the larger, peripherally situate and extending outwards to the ciliary margin of the iris, is known as the *ciliary zone*, *annulus iridis major*. In the pupillary zone the anterior surface of the iris is beset with a number of small depressions (*crypts*), which are surrounded by delicate arborescent elevations. The ciliary zone is often somewhat lighter in tint, and displays on its anterior surface a series of from three to five furrows, concentrically surrounding the pupil, and between these furrows is a corresponding number of blunted *tumuli* (*contraction-folds*). In its peripheral marginal region the anterior surface of the iris is beset with numerous depressions, usually somewhat darkly coloured. Along the ciliary margin the superficial layers of the stroma of the iris are more loosely woven than elsewhere, so that delicate trabeculae are formed, connecting the edge of the iris with the rather ragged edge of the posterior elastic lamina of the cornea. The circle of these trabeculae, in the angle between the cornea and the iris, constitutes the so-called *ligamentum pectinatum iridis*, which itself forms the inner wall of the *canal of Schlemm*" (Von Langer and Toldt, *op. cit.*, pp. 760, 761). The vascular rings within the substance of the iris, *circulus minor* and *circulus major*, are described by Quain, but the division of the iris into an *annulus minor* or *pupillary zone* and *annulus major* or *ciliary zone*, dependent on these vascular arrangements, is not mentioned by the English author, nor does he describe the *crypts* and the *contraction-folds* of the iris. The last-named, however, are alluded to by Macalister.

⁴⁵⁸ *Pigmentary Layer of the Iris* (Figs. 1346, 1348, 1349, p. 896).—This term is a literal translation of the *stratum pigmenti iridis* of the official German nomenclature. The pigmentary layer of the iris is also variously known, according to the point of view, as the *pars retinalis iridis*, *pars iridica retinae*, and *neural pigment of the iris*. Regarding the *free border* of the pigmentary layer (see Fig. 1346), Quain writes (*op. cit.*, vol. iii., part iii., p. 31), "The pigmentary layer . . . ends abruptly at the margin of the pupil," but Macalister remarks (*op. cit.*, p. 671), "The pigment usually extends into the pupillary zone, defining its border."

⁴⁵⁹ *Venules Maculariae, Superior et Inferior* (Fig. 1355, p. 898).—The little veins running horizontally outwards from the optic papilla to the yellow spot are thus named by Toldt. Quain does not use the term *macular venules*, saying merely, "The macula is also supplied by small vessels which pass directly to it from the papilla" (*op. cit.*, vol. iii., part iii., p. 55). The *arteriae maculariae*,

superior and *inferior*, are, however, mentioned by name by Macalister.

⁴⁶⁰ *Two Principal Groups of the Layers of the Retina* (Fig. 1356, p. 899).—The layers of the retina are divided by Toldt into two principal groups—an inner, which he calls the *Gehirnschicht*, and an outer, the *Nervenepithelschichte*. Macalister, who recognises this grouping, speaks of these primary layers as *nerve elements* (or *layers*) and *neuro-epithelial elements* (or *layers*); but the German *Gehirnschicht* must be literally rendered *brain layers*. (These terms are not used by Quain.) The layers making up these two groups are enumerated in the text of Fig. 1356.

⁴⁶¹ *Rod Cell and Cone Cell* (*Ibid.*).—These terms are translations of the German words *Stäbchenzelle* and *Zapfenzelle*, used in the original German edition of this work. They denote what Quain calls *rod element* and *cone element*, respectively, but the terms used in the text are more clearly expressive of the views of Toldt, as embodied in the following passage (Von Langer and Toldt, *op. cit.*, p. 767): "The granules (*Körner*) of the outer nuclear layer combine with the rods (*Stäbchen*) and cones (*Zapfen*) to form the neuro-epithelium (*Sinus epithel*) which lies outside the brain layer of the retina." The *rods* and *cones*, and their connexion with the granules of the outer nuclear layer, are then described, and the author proceeds: "The external granules are, in truth, nothing more than the nuclei of long-drawn-out cells, whose peripheral processes form the rods and cones. These cells are a particular kind of sensory cells, known as visual cells (*Selzellen*), which unite to form the sensory epithelium (neuro-epithelium) of the retina. A visual cell, therefore, is a greatly elongated cell, the nucleus of which (outer granule) lies in the extended middle portion of the cell, whose peripheral end bears a rod or a cone, and whose central end terminates in an arborescence in the outer molecular layer." These views should be compared with those of Quain, *op. cit.*, vol. iii., part iii., p. 46 (small print at top of page) and pp. 56 and 57 (section on the "Interconnection of the Retinal Elements"). With Fig. 1356 Quain's Figs. 52 and 65 (*op. cit.*, tom. i.) should also be compared.

⁴⁶² *Tarsi* (Fig. 1367, p. 902).—Macalister speaks of these as the *tarsal bodies*. They were formerly often called the *tarsal cartilages*, but this was a misnomer, as they consist purely of fibrous tissue, without any intermixture of cartilage cells.

⁴⁶³ **Annulus Conjunctivae* (Fig. 1368, p. 902).—We distinguish the *palpebral conjunctiva*, *conjunctiva palpebrarum*, from the *ocular conjunctiva*, *conjunctiva bulbi*; the latter extends forwards to the corneal margin, where it is intimately connected with the anterior border of the sclerotic; this adherent and somewhat thin portion of the ocular conjunctiva is known as the *annulus conjunctivae*. Immediately within the annulus the conjunctival epithelium is continued, without any definite boundary, into the corneal epithelium" (Von Langer and Toldt, *op. cit.*, p. 781). The term **annulus conjunctivae* is not used by Quain.

⁴⁶⁴ *Bursa Trochlearis* (Fig. 1370, p. 903).—According to Quain (*op. cit.*, vol. ii., part ii., p. 290), "the pulley is lined by a synovial sheath"; but Macalister writes (*op. cit.*, p. 653), "The tendon is here [i.e., within the pulley] invested by a very lax laminated areolar tissue with an imperfect endothelial lining in its clefts, but there is scarcely ever a true synovial membrane lining the trochlea."

⁴⁶⁵ *Fascial Sheaths of the Muscles of the Eyeball* (*Ibid.*).—All the muscles of the eyeball are covered, as well on their bulbar as on their orbital surfaces, by fascial investments, *fasciae musculares*. In the posterior part of the orbit these are thin and delicate, but they become much thicker and stronger as the

muscles approach the globe. Here they are on the one hand connected with Tenon's capsule (*fascia bulbi*), and on the other are connected by firm fibrous slips (*Fascienzüpfel*) with the margin of the orbit, and more especially with the trochlea. In this manner a fixed relation is maintained between the globe and the walls of the orbit. At their thinned anterior extremities the fascial sheaths of the muscles radiate along the fornix conjunctiva, where they become interwoven with the conjunctival submucous areolar tissue" (Von Langer and Toldt, *op. cit.*, p. 775). These fascial sheaths are usually regarded as being derived from the posterior (orbital or outer) layer of the capsule of Tenon as the muscles perforate that layer on their way to the eyeball, and are generally described in connexion with the description of Tenon's capsule. See Quain, *op. cit.*, vol. ii., partii., p. 292; and Macalister, *op. cit.*, p. 652. Further, in vol. iii., part iii., pp. 11, 12, Quain writes: "The capsule of Tenon is strengthened just behind the places where the recti muscles perforate it by bands of fibrous tissue, and it is attached on either side to the malar and lacrimal bones by elastic ligamentous structures which also receive fibrous slips from the external and internal recti. These structures serve as check ligaments to these muscles. They are stated by Sappey to contain plain muscular fibres. Fibrous slips also pass from the sheath of the superior and inferior rectus, and are attached to the conjunctival palpebral and to the connective tissue of the eyelid." Thus, the structures to which Toldt gives the name of *Fascienzüpfel* may be called in English *fibrous slips of the fascial sheaths* of the respective muscles, or, more concisely, *check ligaments*.

⁴⁹⁸ *Sulci in the Neighbourhood of the Eye* (Figs. 1380, 1381, p. 908).—"That portion of the eyelid through which the tarsus or tarsal body [see note ⁴⁹² above] extends is usually distinguished as the *tarsal portion* (*pars tarsalis*); that portion of the eyelid which lies nearer to the orbital margin (upper or lower, as the case may be), whose ground-work is formed merely by the thin palpebral fascia (*septum orbitale*), is distinguished as the *orbital portion* (*pars orbitalis*). The former portion, on account of its firm consistency, always remains smooth; whilst the latter portion, when the eye is open, falls into a fold, which disappears when the eye is closed; the boundary between the two portions of the eyelid is, however, indicated by a permanent furrow in the skin, the *sulcus orbitopalpebralis*" (Von Langer and Toldt, *op. cit.*, p. 779). These **orbitopalpebral sulci* are mentioned neither by Quain nor by Macalister. Quain writes (*op. cit.*, Appendix, p. 14): "When the eye is open the skin is drawn into the deep *superior palpebral sulcus* immediately above the upper lid, and forms a loose projecting fold between this furrow and the eyebrow. The corresponding *inferior palpebral sulcus* of the lower lid is much slighter and often broken up; it is most distinct when the eye is directed downwards." Quain's *superior* and *inferior palpebral sulci* must not be identified with the *orbitopalpebral sulci* of Toldt, the latter being merely the slight cutaneous grooves corresponding respectively to the upper margin of the upper tarsal body and the lower margin of the lower tarsal body. Quain proceeds (*op. cit.*, loc. cit.): "Another shallow groove, the *palpebromalar sulcus*, runs round from near the inner canthus of the eye, following fairly closely the lower margin of the orbit. A small *external palpebral sulcus* is continued outwards from the outer canthus for about 3 millimetres, and forms a prolongation of the palpebral cleft when the eye is closed." Macalister writes (*op. cit.*, p. 521): "Near the lower border of the upper lid is a *superior marginal sulcus* parallel to the free border." This is not indicated in Toldt's figures. "The lower lid," writes Macalister (*op. cit.*, p. 522), "is in some

eyes marked by an *inframarginal fold* [*? furrow*]. It is usually marked off from the infra-orbital region by an *infrapalpebral sulcus*; but this is inconstant, as the motion of the lower lid in opening the eye is slight. . . . Below the infrapalpebral sulcus is a variable *palpebromalar sulcus* which deepens and often becomes a characteristic marking in old age, or in wasting diseases, which gives to the eye the appearance described as *hollow*." The *infrapalpebral sulcus* of Macalister is identical with the *inferior palpebral sulcus* of Quain; Toldt calls it *sulcus infrapalpebralis*, and shows it in Figs. 1380, 1381, p. 908.

⁴⁹⁷ *Rictus Oculi* or *Rima Palpebrarum* (Fig. 1380, p. 908).—The term *rictus oculi* is used by Macalister to denote the cleft between the lids, through which, when the eye is open, the front of the globe is visible. In the official German nomenclature this cleft is called *rima palpebrarum*. Neither term is to be found in Quain's "Anatomy," though both are current in England. Quain speaks of the *palpebral cleft*.

⁴⁹⁸ *Commissures of the Eyelids* (Figs. 1380 to 1382, p. 908).—Neither Quain nor Macalister makes use of the term *commissure* in this connexion. The fact is that the term *canthus*, which I have employed to represent in the English nomenclature the *angulus oculi* of the official German nomenclature, has really a somewhat wider significance than the latter, and includes that of *commissura palpebrarum*. Thus, English ophthalmic surgeons speak of "dividing the outer canthus to relieve tension"; and in that case, obviously, the *commissura palpebrarum lateralis* of the Germans is denoted. The term *canthus*, indeed, which originally signified the tire of a wheel, is somewhat misapplied when used, as it habitually is in England, to denote the angles of the palpebral cleft.

⁴⁹⁹ **Intermarginal Sulcus* (Fig. 1382, p. 908).—This term is not found in Von Langer and Toldt's "Anatomy," but is evidently applied here to the flattened, rather than grooved, free margin of the lid, between the outer limbus and the inner. See also note ⁵⁰² below.

⁵⁰⁰ *Pinguecula* (*Ibid.*).—"A yellowish spot, looking like adipose tissue, in the conjunctiva, close to the inner or outer edge of the cornea, consists of thickened conjunctiva and subconjunctival tissue, and contains no fat. It is commonest in old people and in those whose eyes are exposed to local irritants. Though of no consequence, advice is often asked about it" (Nettleship, "Diseases of the Eye," 6th ed., p. 281).

⁵⁰¹ *Riolan's Muscle* (Fig. 1383, p. 909).—"The deep part of the palpebral portion of the *orbicularis palpebrarum muscle*, known as the *par lacrymatis* or *Horner's muscle* . . . springs from the lacrimal crest and from the process of the internal tarsal or palpebral ligament which is attached to that crest. . . . In the lid itself this deep portion lies behind the follicles of the eyelashes . . . to this marginal portion of the muscle the name of *musculus ciliaris Riolani* or *musculus subtarsalis* is also given" (Von Langer and Toldt, *op. cit.*, p. 780). Quain writes (*op. cit.*, vol. iii., part iii., p. 2): "A marginal fasciculus (of the *orbicularis muscle*) lies within the line of the eyelashes, separated by the bulbs of the lashes from the other fibres, and constituting the *ciliary bundle* or *muscle of Riolan*." The fibres of the *tensor tarsi* or *muscle of Horner*, passing outwards behind the lacrimal sac from the origin above given, are, according to Quain's description, inserted into the ciliary bundles. The name *subtarsal muscle* is used by Macalister.

⁵⁰² **Rivus Lacrymalis* (*Ibid.*).—This term is used neither by Quain nor by Macalister, nor is any definition of it to be found in Von Langer and Toldt's "Anatomy." In the original German edition of this work the alternative name of *Thränenbach, lacrymal*

channel, is given. It denotes, I presume, the channel for the lachrymal secretion which, when the lids are closed, is formed by the apposition of the upper and lower **intermarginal sulci*. See note ⁴⁹⁹ above.

⁵⁰³ *Lanugo* (Fig. 1386, p. 910).—The use of this term is in England usually restricted to denote the downy crop of hairs with which an infant is covered at birth, but which are all shed within a few months thereafter. In Germany, on the other hand, *Wollhaare* or *Lanugo* denotes the rudimentary hairy covering of the body throughout life, as distinguished from the specialized and fully developed hairs of the head, beard, axilla, etc. There is no term current in England to distinguish this rudimentary hairy covering.

⁵⁰⁴ *Superior Palpebral Muscle, or Musculus Tarsalis* (*Ibid.*).—“Just beneath the conjunctiva, both in the upper and in the lower lid, there is a layer of smooth muscle fibres which are attached by means of thin elastic tendons to the margins of the tarsal bodies, and probably serve to keep the eye open. They are known as *musculus tarsalis superior* and *musculus tarsalis inferior*” (Von Langer and Toldt, *op. cit.*, pp. 780, 781). To the upper of these Macalister gives the name of *superior palpebral muscle*. Quain describes them, stating that the upper arises from the under surface of the aponeurotic expansion of the levator palpebrae superioris, the lower from the neighbourhood of the inferior oblique muscles, but he leaves the structures unnamed. They are among the fibres denoted by the name of *Müller's muscle*, a term liable to lead to confusion. See note ⁴⁵¹ above.

⁵⁰⁵ *Lachrymal Gland* (Figs. 1388, 1389, p. 911).—The *lachrymal gland* was till recently described, and is by many anatomists still described, as a single gland. The fore part of the gland, however, is separated from the rest by a thin fascial layer; it lies immediately beneath the conjunctiva, being in contact with the outer part of the superior fornix; to this part the name of *inferior lachrymal gland* is sometimes given, the remaining and larger portion being then known as the *superior lachrymal gland*. The *inferior lachrymal gland* is also known as the *palpebral portion of the lachrymal gland*, and as the *accessory lachrymal gland* (of Rosenmüller).

⁵⁰⁶ *Common Orifice of the Lachrymal Canaliculi* (Fig. 1392, p. 913).—“The canals either unite near their ends, or they open separately, but close together, into a diverticulum of the nasal sac which is known as the *sinus of Meier*” (Quain, *op. cit.*, vol. iii., part iii., p. 9). “The two [canalicular] units internal to the caruncula to form usually a very short tube or small sac, the *vestibulum*, which opens internally into the lachrymal sac, of which, indeed, it is only a lateral pouch” (Macalister, *op. cit.*, p. 645).

⁵⁰⁷ *Choroidal Fissure*.—The term *coloboma*, used by Toldt to denote the *choroidal fissure* (the cleft through which, in the developing eye, the mesoblast passes into the space between the lens invagination and the pigment layer of the optic cup), is in England usually employed to denote a congenital cleft in the iris, or choroid, or both, due to imperfect closure of the choroidal fissure.

⁵⁰⁸ *Subdivisions of the Concha* (Figs. 1406, 1408, p. 920).—The anterior part of the helix descends towards the external auditory meatus, but, before reaching it, curves backwards across the cavity known as the *concha*, which is thus divided by the *crus of the helix* into two parts—an upper, **cymba concha*, and a lower, **cavum concha*. These terms are not used by Quain or Macalister.

⁵⁰⁹ *Fossa of the Antihelix* (Figs. 1406, 1407, p. 920).—In England this name is usually applied to a depression on the outer surface of the auricle (see Fig. 1406). In Germany, however, this

depression is known as the *fossa triangularis*, while by the *fossa antihelicis* is meant the depression on the inner surface of the auricle, below the *eminens scapha* (see Fig. 1407).

⁵¹⁰ *Auricularis Anterior or Attraheus Auricular Muscle* (Figs. 1412, 1413, p. 921).—It is usually stated that the superficial temporal vessels and nerve lie beneath this muscle. Von Langer and Toldt, however, describe the muscle as consisting of two layers, a *superficial* and a *deep*; and, according to Quain (*op. cit.*, vol. ii., part ii., p. 281), “Crveilhier describes as normal a deep anterior auricular muscle, passing from the zygomatic process to the outer surface of the tragus.” As Fig. 1412 shows, the superficial temporal vessels and nerves are *superficial* to this deep layer of the muscle.

⁵¹¹ **Cupular Portion of the Epitympanic Recess* (Fig. 1414, p. 922).—In the original German edition of this work this region of the tympanum is named *Gifselbuch*—the word signifies literally “recess of the summit”—a term not to be found in Von Langer and Toldt’s “Anatomy,” nor even in the “German-English Dictionary of Medical Terms” by Treves and Lang. In the former work, however, the following passage occurs on pp. 788, 789: “At the boundary between its upper and outer walls the epitympanic recess deepens to form a hemispherical fossa, which is known as the *pars cupularis recessus epitympanici*”; and on p. 805, “The head of the hammer-bone is attached by means of the superior ligament of the malleus to the cupular portion of the epitympanic recess.” Bearing these facts in mind, an examination of Fig. 1423, p. 925, in which the term *Gifselbuch* is again used, will render it evident that the latter must be identified with the *cupular portion of the epitympanic recess*. The term *epitympanic recess* or *aditus ad antrum* is used by Quain, but this author does not speak of the *cupular portion* of the recess. Fig. 1423 shows well the manner in which the recess, in Quain’s words, “overhangs the inner end of the external auditory meatus.” Why the term *Gifselbuch* is used in this volume, in contradistinction to the Latin term *pars cupularis recessus epitympanici* in Part I. of this Atlas (see Fig. 132, p. 64) and in Von Langer and Toldt’s “Anatomy,” is not apparent.

⁵¹² (Figs. 1420, 1422, p. 924). Toldt distinguishes between the *pars tensa* and the *pars flaccida membrana tympani*. The latter is usually known in England as the *membrana flaccida*. The term *pars tensa membrana tympani* is not used by Quain or Macalister; I have rendered it literally *tense portion of the tympanic membrane*.

⁵¹³ **Malleolar Prominence and *Stria Malleolaris* (Fig. 1420, p. 924).—“Near the upper margin of the *membrana tympani* we see also a small prominence, *prominentia malleolaris*, caused by the short process (*processus brevis vel obtusus*) of the malleus” (Von Langer and Toldt, *op. cit.*, p. 803). This term is not used by Quain or Macalister; nor does either of these authors employ the term *stria malleolaris* to denote the handle of the malleus seen through the *membrana tympani*.

⁵¹⁴ **Anterior and Posterior Malleolar Folds* (Fig. 1421, p. 924).—“The auditory ossicles are imbedded in mesentery-like folds of the mucous membrane, which, as they have free projecting borders, give rise to pouches or recesses. One of these folds is attached in front and behind to the margin of the *membrana tympani*, contains between its layers the root of the long process of the malleus and the *chorda tympani* nerve, and extends running parallel to the *membrana tympani*, on to the upper portion of the handle of the malleus, which divides it into a larger anterior and a smaller posterior portion; we speak, therefore, of its two parts as the *plica malleolaris anterior* and the *plica malleolaris posterior*. These folds, with the tympanic

membrane, bound two pouches, each of which has a slit-shaped, downwardly directed orifice; they are known as the *recessus membranae tympani, anterior et posterior*" (Von Langer and Toldt, *op. cit.*, p. 806). This fold is described by Quain (*op. cit.*, vol. iii., part iii., p. 96) as forming the inner boundary of the *anterior* and *posterior pouches of the tympanum*; but the names **anterior* and **posterior malleolar folds* are not used by this author. They must not be confused with the *tympanomalleolar folds* shown in Figs. 1420 and 1422.

⁵¹⁵ **Fold of the Incus* (Fig. 1423, p. 925).—"A second, likewise vertically disposed, fold of the tympanic mucous membrane, the *plica incisus*, is attached to the posterior wall of the tympanum, and forms the covering of the incus, from the long process of which it descends. A third, horizontal fold, the *plica stapedis*, runs from the pyramid or eminentia papillaris along the tendon of the stapedius muscle, and covers not only the crura, but also the obturator membrane of the stapes" (Von Langer and Toldt, *op. cit.*, p. 806: this quotation is a continuation of that in note ⁵¹⁴ above). The terms **fold of the incus* and **fold of the stapes* are used neither by Quain nor by Macalister. The former is shown in Fig. 1423, p. 925, and in Figs. 1429 and 1431, p. 926; but the latter is not indicated by name in this Atlas.

⁵¹⁶ *Processus Orbicularis seu Lenticularis* (Figs. 1423, 1425, 1427, p. 925).—"This tubercle, which articulates with the head of the stapes, was formerly, under the name of *os orbicularis seu lenticulare*, described as a separate bone, which, indeed, it originally is in the fetus up to the sixth month" (Quain, *op. cit.*, vol. iii., part iii., pp. 90, 91). The old name of *os lenticulare* is used by Macalister. In the official German nomenclature the process is termed *processus lenticularis*.

⁵¹⁷ (Fig. 1423, p. 925). The term *membrana propria*, used by Macalister to denote the *central fibrous layer* of the *membrana tympani*, is more appropriate than the term *tuuia propria*, used by Quain, since *tuuia* properly means a *covering*, and this is the central portion of the membrane, itself covered by an outer cutaneous and an inner mucous tunic.

⁵¹⁸ *Crura of the Stapes* (Fig. 1426, p. 925).—The *anterior crus* of the stapes is the straighter of the two, and is therefore named by Macalister *crus rectilineum*; the *posterior*, more curved of the two crura being by this author named *crus curvilineum*. The crura diverge from a constricted part, close to the head, known in England as the *neck* of the bone; the crura and the neck combine to form what is sometimes named the *arch* of the stapes. Neither of these latter terms is represented in the nomenclature used by Toldt.

⁵¹⁹ *Obturator Membrane of the Stapes* (*Ibid.*).—This membrane is described by Quain, but the name *obturator membrane* is not used by this author. Macalister speaks of it in one place as the *obturator membrane*, and in another as the *membrana obturatrix*.

⁵²⁰ *Posterior Ligament of the Incus* (Fig. 1429, p. 926).—This being the only ligament of any importance attached to the incus, Quain calls it the *ligament of the incus* without qualification. Macalister uses the Latin name, *ligamentum incidis posterioris*.

⁵²¹ *Petrosphenoidal Suture* (*Ibid.*).—In the first (osteological) section of this work the articulation between the anterior border of the petrous bone and the great wing of the sphenoid bone is called by Toldt *fissura spheno-petrosa*, a term which in Fig. 104, p. 48, I have translated *petrosphenoidal fissure*, and in Fig. 105, p. 49, *petrosphenoidal suture*. In the former case, seen from below, it has rather the appearance of a *fissure*; in the latter, seen from above, of a *suture*. The latter also is the aspect presented in Fig. 1429, p. 926. It is, in fact, only over a small area that the apposed surfaces of the two bones are in actual contact so as to

form a *suture*; elsewhere these surfaces, and this for the greater part of their extent, form the sides of a *fissure*. *Petrosphenoidal fissure* is the name given to the articulation by Quain.

⁵²² *Roof of the Tympanum and Tegmen Tympani* (*Ibid.*).—Macalister uses these terms as interchangeable; according to Quain, however, the thin plate of bone known as *tegmen tympani* "also roofs over the canal of the Eustachian tube and the tensor tympani muscle" (Quain, *op. cit.*, vol. iii., part iii., p. 81). Thus, the *roof of the tympanum* forms a part only of the *tegmen tympani*. The former is distinguished by Toldt as the *paries tegmentalis cavi tympani* (*cf.* Fig. 133, p. 65, in Part I. of this Atlas).

⁵²³ *Secondary Tympanic Membrane* (Fig. 1431, p. 926).—Quain calls this structure the *secondary membrane of the tympanum*. The form used in the text seems preferable; and it is, moreover, a literal translation of the term *membrana tympani secundaria*, used in the official German nomenclature. Better than any of these, because more precise, is, in my opinion, the name used by Foster and some other authorities, *membrane of the fenestra rotunda*. This harmonizes, moreover, with the alternative name of the *annular ligament of the base of the stapes* (see note ⁷, p. 926).

⁵²⁴ *Cochleariform Process* (Fig. 1432, p. 927).—It should be noted that Quain designates by this term the entire *septum of the musculotubal canal* (see note ⁵²⁸ below), which separates the osseous portion of the Eustachian tube from the canal for the tensor tympani muscle. By Toldt this septum is named *septum canalis musculotubari*; while by the term *processus cochleariformis* the German author denotes merely the expanded and everted end of the septum, which projects into the tympanic cavity and separates the *fenestra ovalis* from the tympanic orifice of the Eustachian tube. The tendon of the tensor tympani muscle bends at nearly a right angle over the cochleariform process as over a pulley. Toldt's usage of the term *processus cochleariformis* is preferable to Quain's, and is, indeed, that of many English anatomists (see also Fig. 135, p. 66, in Part I.).

⁵²⁵ *Groove of the Promontory* (*Ibid.*).—According to Quain, "the surface of the promontory is marked by grooves, in which lie the nerves of the tympanic plexus" (*op. cit.*, vol. iii., part iii., p. 83). Toldt, on the other hand, speaks of a single, vertical groove, *sulcus promontorii*; "a continuation of the tympanic canaliculus; in this groove the tympanic nerve (nerve of Jacobson) and the small superficial petrosal nerve meet and unite" (Von Langer and Toldt, *op. cit.*, p. 788). In Fig. 138, p. 67, Part I. of this Atlas, however, the surface of the promontory exhibits several grooves, as described by Quain.

⁵²⁶ (Fig. 1435, p. 928). The *Eustachian cartilage* is bent in such a manner that it forms the roof, the greater part of the inner wall, and a small part of the outer wall of the cartilaginous portion of the Eustachian tube. The portion forming the inner wall is named by Toldt *lamina medialis* (**inner plate*), that forming the upper part of the outer wall *lamina lateralis* (**outer plate*), of the Eustachian cartilage. Where the cartilage is lacking, the wall of the cartilaginous portion of the tube is strengthened by a strong but flexible fibrous membrane, named by Toldt *lamina membranacea tubæ auditivæ*. By Quain this membrane is called *fusca salpingopharyngea*, a name used on the Continent in a different signification (see note ¹ to p. 436, in Part IV.), and therefore better avoided in this connexion. I have called it simply the *membranous portion of the Eustachian tube*. The parts just described are best seen in a transverse section of the Eustachian tube, as in Figs. 1437, 1438, and 1439, p. 929.

⁵²⁷ *Levator Cushion* (*Ibid.*).—"When the levatores palati are contracted, the upper surface of the soft palate presents a convex

eminence behind each posterior naris, called the *levator cushion*. This is occasionally seen in the dead body" (Quain, *op. cit.*, vol. iii., part iv., p. 57).

⁵²⁸ **Musculotubal Canal* (Fig. 1436, p. 929).—The name "canalis musculotubarius" is used by the author as a common name for the canal for the *tensor tympani* muscle and the *osseous canal for the Eustachian tube* (which canals are therefore called by him *semicanal*, viz., *semicanalis musculi tensoris tympani* and *semicanalis tube auditivæ*, respectively), which are separated one from the other more or less completely by the **septum of the musculotubular canal* (**septum canalis musculotubarii*) or *cochleariform process*. The latter name, however, is better confined to the expanded and everted end of the septum, which projects freely into the tympanic cavity. See note ⁵²⁹ above.

⁵²⁹ *Crura of the Semicircular Canals* (Fig. 1442, p. 930).—In the German official nomenclature that half or limb of each semicircular canal whose extremity dilates into an ampulla is termed the *ampullary crus* (*crus ampullare*), whilst the other half or limb of the canal is termed the *simple crus* (*crus simplex*). Further, the non-ampullary or undilated extremities of the superior and posterior semicircular canals unite before opening into the vestibule to form what is termed the *common crus* (*crus commune*). (See Von Langer and Toldt, *op. cit.*, p. 792.) These terms are sometimes used in England also.

⁵³⁰ *Whorls of the Cochlea* (Figs. 1440, 1441, p. 930).—The term *whorl* is employed by Macalister and by Foster, and is probably that most generally used in speaking of the convolutions of the cochlea; by Quain, however, the terms *coil* and *turn* are employed indifferently.

⁵³¹ *Macula Cribrosa Superior* (Fig. 1442, p. 930).—This term is used by Macalister, but not by Quain. It denotes the cribiform area at the upper end of the crest of the vestibule, the foramina of which correspond with those of the *area cribrosa superior* (*area vestibularis superior*, according to Toldt) of the fundus of the internal auditory meatus or reniform fossa (see Fig. 140, p. 68, in Part I. of this Atlas), and transmit the filaments of the superior division of the auditory nerve, or vestibular nerve, which supplies the utricle and the ampulla of the superior and external semicircular canals.

⁵³² *Macula Cribrosa Media* (*Ibid.*).—This term is used by Macalister, but not by Quain. It denotes the cribiform area in the lower part of the fovea hemispherica, the foramina of which correspond with those of the *area cribrosa media* (*area vestibularis inferior*, according to Toldt) of the fundus of the internal auditory meatus or reniform fossa (see Fig. 140, p. 68, in Part I. of this Atlas), and transmit the filaments of the nerve to the saccule.

⁵³³ *Macula Cribrosa Inferior* (*Ibid.*).—This term is used by Macalister, but not by Quain. The smallest of the three cribiform areas of the vestibule, it is situate close to the ampullary orifice of the posterior semicircular canal. Its foramina lead to the *foramen singulare* of the fundus of the internal auditory meatus or reniform fossa (see Fig. 140, p. 68, in Part I. of this Atlas), and transmit the filaments of the posterior ampillary nerve.

⁵³⁴ **Area of the Cochlea* (Fig. 1448, p. 932).—“Much the greater part of the lower division [*inferior fossa*, Quain] of the fundus of the internal auditory meatus [*i.e.*, of the region below the transverse crest or *crista falciformis*] is occupied by the *area cochleæ*; this depressed area corresponds to the base of the cochlea, and is occupied by the *tractus spiralis foraminentus*” (Von Langer and Toldt, *op. cit.*, p. 795). “In the inferior fossa are seen (1) the *area cribrosa media* . . . ; (2) the *foramen singulare* . . . ; and (3)

the *tractus spiralis foraminentus*, for the cochlear division of the auditory nerve, a series of minute holes beginning below the *area cribrosa media*, forming one turn and a half in a depression corresponding to the base of the cochlea, and ending at the *foramen centrale cochleæ*, the orifice of the central canal of the *modiolus*” (Quain, *op. cit.*, vol. ii., part i., p. 43). Quain appears to use the term *tractus spiralis foraminentus* in a double sense, but it seems better to limit its signification to the spirally arranged series of foramina, and to adopt the name *area of the cochlea* for the whole area corresponding to the base of the cochlea. See also Fig. 140, p. 68, in Part I.

⁵³⁵ *Spiral Septum separating the Whorls of the Cochlea* (Fig. 1452, p. 934).—By a strange oversight the *complete* osseous septum between the whorls of the cochlea, upon which the separation of the cavity of that organ into a coiled tube depends, has been left unnamed by Quain and also by Macalister. Nor is there any term for it in the official Latin nomenclature of the German Anatomical Society. Toldt calls it the *Zwischenwand* (*partition-wall*), a name which is insufficiently distinctive. The name used in the text of Figs. 1451 and 1452, p. 934, *spiral septum separating the whorls of the cochlea*, is cumbersome; but to speak of it as the *spiral septum* alone might lead to confusion with the *incomplete* septum known as the *osseous spiral lamina*.

⁵³⁶ *Spiral Osseous Canal of the Cochlea* (Fig. 1451, p. 934).—The term *spiral osseous canal* is used by Quain to denote the cavity of the cochlea when the membranes have been removed. To speak simply of the *spiral canal of the cochlea* (a literal translation of the term *canalis spiralis cochleæ* used by Toldt) might lead to confusion with the *spiral canal* of the intact cochlea situated between the *scala vestibuli* and the *scala tympani*. This canal was formerly known as the *scala media*, but is now usually termed the *canal of the cochlea* or *canalis cochleæ*; it is also known as the *canalis membranaceus cochleæ*, and as the *ductus cochlearis*. This last name, *ductus cochlearis*, being the one always used in Germany to denote the *cochlear canal* of English authors, no confusion is liable to arise in that country with the *canalis spiralis cochleæ*.

⁵³⁷ **Lamina Modioli* (Figs. 1451, 1452, p. 934).—This term is not used by Quain or Macalister, and I therefore quote the following definition from Von Langer and Toldt (*op. cit.*, p. 793): “An independent axis exists within the windings of the cochlea just as little as within those of a snail-shell. If, however, we break into the spiral tube of a snail-shell from without, we find that those parts of the wall of the tube adjacent to the geometrical axis of the coil combine to form an apparent columnar axis. It is the pseud-axis of the cochlea formed in this manner that is known as the *modiolus*. In the two complete whorls the circumference of this axis is likewise complete, so that it forms a small hollow column, with an aperture in the centre of the base of the cochlea; in the apical whorl, however, which is a half-turn merely, the circumference of the axis is incomplete, and has the form of a ledge projecting from the wall, which ascends perpendicularly [see note ⁵³⁸ below] to the cupola, and is known as the **lamina modioli*.”

⁵³⁸ **Area of the Facial Nerve* (Fig. 1453, p. 934).—In note ⁵³⁴ above, dealing with the terminology of the parts of the fundus of the internal auditory meatus or reniform fossa, the division of this region into a smaller *superior fossa* and a larger *inferior fossa* by means of a horizontal ridge known as the *transverse crest* or *crista falciformis* was described. In the bottom of the superior fossa is the *area cribrosa superior* (*area vestibularis superior*, according to Toldt), transmitting the filaments of the superior division of the auditory nerve, or vestibular nerve; while on the anterior wall of the fossa is the orifice of the aqueduct of

Fallopian. This latter, in the German official nomenclature, is known as the *area nervi facialis*.

⁵²⁹ *Longitudinal Canals of the Modiolus* (*Ibid.*).—This term, denoting the finer canals of the axis of the cochlea—all the canals, that is to say, besides the *central canal* and the *spiral canal of the modiolus*—is not used by Quain. The structures in question are, however, described by this author in the following terms (*op. cit.*, vol. iii., part iii., pp. 102, 103): "The central part of the modiolus is spongy as far as the last half-coil, and is pierced by many small canals, for the passage of the nerves and vessels to the spiral lamina; one of these canals, larger than the rest, *central canal of the modiolus*, runs from the base through the centre of the modiolus. The base of the modiolus appears in the internal auditory meatus as the *fossula cochlearis* containing the foramen centrale and the *tractus spiralis foraminulenta*; the latter transmitting the nerve fibres of one and a half turns of the cochlear tube, the former being continued into the central canal of the modiolus and transmitting the nerve fibres for the uppermost turn." The *fossula cochlearis* thus briefly alluded to by Quain is the portion of the fundus of the internal auditory meatus or reniform fossa called by Toldt *area cochlearis* (see note ⁵³¹ above). In Fig. 114, p. 103 (*op. cit.*, tom. *cit.*), Quain calls it, not *fossula*, but *fovea cochlearis*. It must not be confounded with the *recessus cochlearis*, a minute depression on the inferior wall of the vestibule in which the blind basal extremity of the ductus cochlearis or canal of the cochlea is lodged (see Fig. 142, p. 930).

⁵³⁰ *Conventional Description of the Cochlea* (*Ibid.*).—In note ⁵²⁷ above, the *lamina modioli* is said to ascend *perpendicularly* to the cupola of the cochlea. It can be said to do so only if the axis of the cochlea is considered as vertical, for descriptive purposes. "In the natural position," says Foster ("Physiology," 5th ed., 1891, p. 1340), "the cochlea is nearly horizontal with the beginning of the first whorl in the base abutting on the median wall of the tympanum, and with the apex directed forwards and towards the median line; but when we are dealing with it by itself it will be convenient to consider it as if it were vertical in position, with the apex above and the base below." Quain accords on the same convention in his description of the isolated cochlea (*op. cit.*, vol. iii., part iii., p. 113, footnote), and adds that parts nearer the *columella* (modiolus) are spoken of as *inner*, parts nearer the external wall as *outer*. In the use, indeed, of such terms as *apex* and *cupola* the assumption in question is implied.

⁵³¹ *Tractus Spiralis Foraminulenta* (Fig. 1455, p. 935).—This is the spirally arranged series of foramina, the apertures of the *longitudinal canals of the modiolus*, transmitting the filaments of the cochlear nerve to the basal and middle whorls of the cochlea; in the centre of the spiral is a larger foramen (*foramen centrale cochlearis*), the aperture of the *central canal of the modiolus*, transmitting that part of the cochlear nerve which supplies the apical half-whorl of the cochlea. Strictly speaking, the application of the term *tractus spiralis foraminulenta* should be limited to the spiral groove in which the foramina are situate; the whole of the shallow depression which the spiral groove itself occupies, corresponding as it does to the centre of the base of the cochlea—that is, to the base of the modiolus—being by Toldt named *area cochlearis*, and by Quain *fossula* or *fovea cochlearis*. (See also notes ⁵³⁴ and ⁵³⁹ above.)

⁵³² *Osseous and Membranous Semicircular Canals* (Figs. 1456 to 1458, p. 936).—In the German official nomenclature the membranous semicircular canals are termed *ductus semicirculares*. This usage is at once concise, and avoids the possibility of confusion; but to speak in English of the *semicircular ducts*

would be too much of an innovation, and I have therefore introduced the word *membranous* in parentheses in all cases in which the *membranous canals* are denoted. In all cases in which the term *semicircular canal* is used in this work without that qualification, one of the *osseous canals* is indicated.

⁵³³ *Crista Acustica and *Amphillary Sulci* (Fig. 1456, p. 936).—

"Each of the membranous ampulla exhibits on its outer surface a groove traversing nearly half its circumference, known as the *sulcus ampullaris*, along which bundles of the auditory nerve enter the wall of the ampulla. This groove corresponds to a sickle-shaped fold in the interior of the ampulla, the *crista ampullaris*, covered by the sensory epithelium" (Von Langer and Toldt, *op. cit.*, p. 796). Quain calls the whole projection *septum transversum*, and its most prominent part, surmounted by the auditory epithelium, the *crista acustica*, and it is this latter name which is commonly used in England to denote the *crista ampullaris* of the German official nomenclature. "Beyond each rounded end of the crista," continues Quain (*op. cit.*, vol. iii., part iii., p. 108), "is a crescent-shaped edge (covered by columnar epithelium) which has been termed *septum semilunatum*." Neither this term nor the term *septum transversum* is used by Toldt; Quain, on the other hand, does not use the term *sulcus ampullaris* or any equivalent thereof. Macalister describes the sulcus without giving it any distinctive name. He writes (*op. cit.*, p. 685): "On the saccule and on each ampulla there are thickened areas circumscribed and projecting into their cavities; each ampulla is crossed by a transverse *crista acustica*, marked externally by a slight depression. The similar spots on the inner wall of the sacculus and utricle are called *maculae acustiae*." As the English equivalent of **sulcus ampullaris*, I use in the text a literal translation, **ampillary groove*. (See Fig. 1462, p. 938.)

⁵³⁴ *The Vestibular Nerve* (Figs. 1457, 1458, p. 936).—Toldt's description and nomenclature of the superior division of the auditory nerve or vestibular nerve differ somewhat from those of Quain. "The vestibular nerve consists of two branches—an *upper, ramus utriculo-ampullaris*, and a *lower, ramus sacculo-ampullaris*. The *utriculo-ampullary nerve* consists of the united *utricle nerve*, *superior ampillary nerve*, and *external ampillary nerve*; the *sacculo-ampillary nerve* consists of the united *saccular nerve* and *posterior ampillary nerve*" (Von Langer and Toldt, *op. cit.*, pp. 788, 789). According to Quain, on the other hand, the *superior division of the auditory nerve, or vestibular nerve*, supplies only the *utricle nerve*, *superior ampillary nerve*, and *external ampillary nerve*—consists, that is, of the filaments that emerge from the *macula cribrosa superior* (see note ⁵³¹ above)—and is thus really identical with the **utriculo-ampillary branch* of Toldt. The *inferior division of the auditory nerve*, on the other hand, divides into (a) *a posterior branch* (identical with Toldt's **sacculo-ampillary branch*) which supplies the *saccular nerve*, emerging from the *macula cribrosa media* (see note ⁵³² above), and the *posterior ampillary nerve*, emerging from the *macula cribrosa inferior* (see note ⁵³³ above); and (b) *an anterior branch*, which is the *cochlear nerve*. Yet another classification of these branches is adopted by Macalister (*op. cit.*, p. 684), apparently based upon, and yet differing slightly from, that of Schwalbe. Quain's grouping of the branches would, however, seem to be that most in accordance with the anatomical data.

⁵³⁵ **Vestibular Cæcum, and *Cupular Cæcum or Lagena* (Fig. 1458, p. 936).—The name of **cæcum vestibulare* is given by Toldt to the blind extremity of the canal of the cochlea at the base of that organ, **cæcum cupulare* to the blind extremity at the apex. These terms are not used by Quain, who, however, speaks of the latter as the *lagena*.

⁵⁴⁵ *Cavity of the Cochlea* (*Ibid.*).—The term here translated *cavity of the cochlea* is in the original German *Schneckenkanal*, a literal rendering of which as *cochlear canal* would be likely to lead to confusion. The cavity or canal here designated is the interior of the membranous cochlea considered as a whole, without regard to its interior subdivisions into *scala vestibuli*, *scala tympani*, and *ductus cochlearis*. Concerning the author's use of a similar term to denote the interior of the osseous cochlea considered as a whole, viz., the *spiral osseous canal of the cochlea*, see note ⁵³⁶ above.

⁵⁴⁷ **Ductus Perilymphaticus* (Fig. 1459, p. 937).—This name is not used by Quain or Macalister. According to Von Langer and Toldt (*op. cit.*, p. 798), "The canaliculus cochlearis (aque duct of the cochlea) conveys the *ductus perilymphaticus*; this leads downwards from the scala tympani quite close to the fenestra rotunda, and at the inferior (or posterior) border of the petrous portion of the temporal bone [see Fig. 133, p. 65, in Part I.], through the external orifice of the aqueduct of the cochlea [see Fig. 128, p. 62, and Fig. 129, p. 63, in Part I.], a communication is effected between the perilymphatic space and the subdural space." According to Quain (*op. cit.*, vol. iii., part iii., p. 104), "Close to the commencement of the scala tympani is the orifice of a small canal (*aqueductus cochlearis*), which extends downwards and inwards to the lower border of the petrous bone, where it opens into a depression immediately in front of the jugular fossa. It transmits a small vein which joins the inferior petrosal sinus. There is also a communication along the aqueductus cochlearis between the subarachnoid space and the perilymph in the scala tympani." The communication is rather, as described by Quain, of the nature of a perivascular lymph space (resembling those perivascular spaces in the tunica adventitia of the bloodvessels of the brain and the spinal cord which communicate with the subarachnoid space at the surface of those organs), than a distinct duct, as described by Von Langer and Toldt. On the other hand, since the vein of the aqueduct of the cochlea joins the inferior petrosal sinus, which runs between the layers of the dura mater, the perilymphatic space in question must join the *subdural space* (as stated by Von Langer and Toldt), and not the *subarachnoid space* (as stated by Quain). The latter author's error is, however, probably a mere clerical error. Macalister says merely (*op. cit.*, p. 634): "A fine opening starts from the beginning of the floor of the scala tympani and passes down to the side of the basilar surface of the petrous bone as the *aqueductus cochlearis*; veins and lymphatics traverse it."

⁵⁴⁸ **Vestibular Nerve* (Fig. 1465, p. 939).—The term *nervus vestibuli* as used by Toldt is more comprehensive than the term *vestibular nerve* as used by Quain, embracing as it does, in addition to the *utricle*, the *superior ampillary nerve* and the *external ampillary nerve* (which constitute the *vestibular nerve* or *superior division of the auditory nerve*, according to Quain), the *sacculi nerve* and the *posterior ampillary nerve* (which latter are regarded by Quain as constituting a distinct *posterior branch of the inferior division of the auditory nerve*). See also note ⁵⁴¹ above, and notes ⁵ and ⁶ to p. 937.

⁵⁴⁹ *Spiral Prominence* (Fig. 1466, p. 939).—This is described by Quain, although the name *spiral prominence* is not actually employed by this author. He writes (*op. cit.*, vol. iii., part iii., p. 119): "There is usually a slight inward projection [on the outer wall of the cochlear canal] a little above the spiral ligament, containing a prominent bloodvessel." This "inward projection" is that named *prominential spiralis* in Toldt's Fig. 1466, p. 939. The "prominent bloodvessel" is also visible in the same

figure, but is left unnamed. Quain, in his Fig. 133 (*op. cit.*, *tom. cit.*, p. 118), names it the *vas prominens*, the name used by Toldt in Fig. 1468, p. 940.

⁵⁵⁰ **Aterial Glomerulus of the Cochlea* (*Ibid.*).—"The offsets of the cochlear branch [*ramus cochlearis*, one of the two terminal branches of the internal auditory artery] enter the canaliculi of the modiolus, and form loops or actual glomeruli, the *glomeruli arteriosi cochlearis*, and from these latter arise the fine terminal branches to the spiral ganglion and to the nerve expansion in the osseous spiral lamina as well as to the wall of the scala vestibuli and to Reissner's membrane" (Von Langer and Toldt, *op. cit.*, p. 799). Quain describes "a spirally arranged glomerulus-like arterial plexus" in the *outer wall* of the cochlea (*op. cit.*, vol. iii., part iii., p. 126), but makes no mention of glomeruli on the vessels in the canals of the modiolus and the osseous spiral lamina.

⁵⁵¹ *The Bloodvessels of the Labyrinth* (Figs. 1467, 1468, p. 940).—Quain's account of these vessels is not very minutely detailed, and for this reason many of the names used on this page are not to be found in Quain's "Anatomy." According to Von Langer and Toldt, whose account I here summarize (*vide op. cit.*, pp. 799, 800), the *internal auditory artery* (*arteria auditiva interna*), a branch of the *basilar artery* (*arteria basilaris*)—see Fig. 1007, p. 619, Fig. 1011, p. 622, and Fig. 1012, p. 623, in Part V.—accompanies the auditory nerve into the internal auditory meatus. After giving off a considerable *vestibular branch* (*ramus vestibularis*), which supplies the maculae acusticae of the saccule and utricle, and the ampullæ of the superior and external membranous semicircular canals, the *internal auditory artery* divides into its two terminal branches. One of these, the *cochlear branch* (*ramus cochlearis*), supplies the middle and apical whorls of the cochlea; the branches of this vessel are described in note ⁵³⁶ above. The other terminal branch, the *vestibulocochlear branch* (*ramus vestibulocochlearis*), supplies the basal whorl of the cochlea, the saccule and the utricle, and the ampulla of the posterior membranous semicircular canal. The branches to the ampullæ give off fine arterial twigs along the membranous semicircular canals. The *veins of the labyrinth, internal auditory veins* (*venæ auditivæ internæ*), combine for the most part to form two trunks. One of these, the *vein of the aqueduct of the vestibule* (*vena aqueductus vestibuli*), is formed by the coalescence of capillaries from the utricle and the semicircular canals, and terminates in the superior petrosal sinus. The other, the *vein of the aqueduct of the cochlea* (*vena canaliculi cochlearis*), receives the veins of the cochlea and small *vestibular veins* (*venæ vestibulares*), and terminates in the bulb of the internal jugular vein (see note ⁵⁴⁷ above, and also Appendix to Part V., note ¹³). The principal radicle of the cochlear veins is the *spiral vein of the modiolus* (*vena spiralis modioli*), which runs in the axial wall of the scala tympani; the venules opening into this trunk surround the wall of the scala tympani, whereas the terminal branches of the arteries surround the wall of the scala vestibuli. In the internal auditory meatus is a companion vein (sometimes wanting) to the internal auditory artery; this vessel is more particularly distinguished as the *internal auditory vein* (*vena auditiva interna*). It empties itself into the inferior petrosal sinus, and represents a collateral channel for the cochlear veins. The fine anastomoses of the vessels of the labyrinth with the vessels of the tympanum are effected by means of the bloodvessels of the petrous portion of the temporal bone.

⁵⁵² *Vas Spirale* (Fig. 1468, p. 940).—This vessel, though figured in Toldt's Atlas, is omitted by Von Langer and Toldt from their description of the vessels of the labyrinth (see note ⁵³⁶).

above). Quain, however, writes (*op. cit.*, vol. iii., part iii., p. 117): "Small bloodvessels are found in the basilar membrane, as a rule extending only over its inner part. They are usually terminated by a rather large longitudinally running vessel, situated opposite the outer rods of Corti, and known as the *vas spirale*."

⁵⁵³ *Cartilage of Jacobson* (Fig. 1471, p. 943).—In the specimen shown in Fig. 1471 this cartilage barely comes into contact with the vomer, the end of that bone being truncated, and thus the cartilage hardly seems to deserve its alternative names of *vomerine cartilage* or *cartilago vomeronasalis*. When the extremity of the vomer is pointed, however (a condition which the name of the bone implies to be normal), the point extends so far forward that a considerable part of the narrow cartilage of Jacobson lies between the vomer below and the cartilage of the septum above.

⁵⁵⁴ **Eminence of Jacobson* (Fig. 1472, p. 943).—This term is a translation of the term *Jacobson'scher Wulst* used in the original German edition of this work. Macalister (*op. cit.*, p. 635) describes a slight oblique thickening on the anterior and inferior part of the nasal septum, at the anterior extremity of which is the orifice of a blind pouch, the rudiment of the organ of Jacobson. This thickening is the *eminence of Jacobson, to which no distinctive name is given either by Macalister or by Quain.

⁵⁵⁵ **Lateral Crest of the Septum* (Fig. 1475, p. 945).—This term is not used by Quain or Macalister. As Fig. 1475 shows, something more than the common deviation of the septum is denoted. Von Langer and Toldt write (*op. cit.*, p. 92): "Not infrequently we find on the wall of the septum of the nose, in the region of the vomer, a horizontal ridge, *crista lateralis septi*, projecting to one side or the other; or the vomer as a whole may be curved towards one side. In this manner the size of one side of the nasal cavity may be greatly restricted."

⁵⁵⁶ *Cavernous Plexus of the Turbinals* (Fig. 1476, p. 945).—This name is not actually used either by Quain or by Macalister. Quain, however, describes the veins as forming "a dense plexus in the mucous membrane, those in the deeper parts of the membrane being especially large, and closely arranged, so as almost to approach the structure of cavernous tissue. This is most largely developed over the whole lower turbinal, the lower and hinder border of the middle turbinal, and the hinder end of the upper turbinal, as well as on the lower and hinder part of the septum" (*op. cit.*, vol. iii., part iii., p. 145); while Macalister speaks of "patches of vascular tissue simulating erectile tissue" (*op. cit.*, p. 635).

⁵⁵⁷ *Meatus Supremus and Concha Suprema* (*Ibid.*).—"Above and behind the superior turbinal bone, the openings of the sphenoidal and spheno-ethmoidal cells form a depression, the *meatus supremus*, over which there is sometimes a small bony plate, the *concha suprema*" (Macalister, *op. cit.*, p. 231). In another place (p. 637) Macalister speaks of the *meatus supremus* as the *fourth meatus*. This, it will be noted, he describes as constant, the *concha suprema* only as a variety.

⁵⁵⁸ *Meckel's Space* (Fig. 1478, p. 947).—The hollow in the dried skull, close to the apex of the petrous bone, on its anterior or upper surface, in which the Gasserian ganglion lies, is known as the *fossa of the Gasserian ganglion*, or *impressio trigemini* (see Fig. 130, p. 63, in Part I.). In the fresh skull this surface is, of course, covered with dura mater. Further, the outer edge of the tentorium cerebelli being attached to the superior border of the petrous bone and also to the posterior clinoid process, between these two attachments this portion of the dura mater "bridges

over the impressio trigemini on the upper surface of the apex of the petrous bone, and thus closes in the space for the reception of the Gasserian ganglion. This space is the *cavum Meckelii*" (Von Langer and Toldt, *op. cit.*, p. 668).

⁵⁵⁹ *Epidermis* (Fig. 1484, p. 950).—The *epidermis* is also known as the *scarf-skin* or *cuticle*; but the signification of the term *cuticle* is often restricted to the *stratum corneum* and *stratum lucidum*, which are thus grouped together in contradistinction to the *rete mucosum* or *Malpighian layer*. This latter is also subdivided into three layers (distinguishable only under a higher magnification than that of Fig. 1484); in their order from without inwards, these are named *stratum granulosum*, *stratum spinosum*, and *stratum columnare*.

⁵⁶⁰ *Hair-Bulb and Hair-Knob* (Fig. 1489, p. 952).—Von Langer and Toldt distinguish between these structures in the following terms (*op. cit.*, p. 818): "Growing hairs end in a hollow bulbous enlargement, the *hair-bulb* (*bulbus fili*, *Haarzwiebel*), into the interior of which the *hair-papilla* projects, the substance of which is composed of closely packed and, as a rule, deeply pigmented cells. Full-grown hairs, on the contrary, terminate in a somewhat pointed *hair-knob* (*Haarkolben*), which, like the cortical substance of the shaft or stem of the hair, is entirely composed of spindle-shaped cortical cells." Quain speaks of the *bulbus fili* (*Haarzwiebel*) indifferently as *hair-bulb* and *hair-knob*, and of the *Haarkolben* as a *modified hair-bulb*. The term *hair-knob*, however, is a literal translation of *Haarkolben*.

⁵⁶¹ *Inner Root-Sheath* (Figs. 1489, 1491, p. 952).—In the middle portion of the hair-follicle the *inner root-sheath* itself consists of three distinct layers, which⁶ are left unnamed by Toldt in the original German edition of this work. As, however, they are well shown in Fig. 1491, I have indicated them in the text to that figure. These layers are: (1) An outer, fenestrated, non-nucleated layer of flattened cells, known as *Henle's layer*; (2) an intermediate layer of polygonal nucleated cells, often two or three rows deep (though consisting of a single row only in Fig. 1491), known as *Huxley's layer*; and (3) a layer of imbricated, downwardly projecting scales, interdigitating with the upwardly pointing scales of the cuticle proper of the hair, and known itself as the *cuticle of the root-sheath*. Near the mouth and also near the fundus of the follicle, Henle's layer and Huxley's layer are no longer separable, being represented by a single continuous layer of large polygonal nucleated cells. As a whole the *inner root-sheath* is continuous with the *stratum corneum* (see note 559 above).

⁵⁶² *Dermic Coat of the Hair-Follicle* (*Ibid.*).—As the epidermic coat of the follicle is continuous with and represents the epidermis of the cutaneous surface, so the dermic coat is continuous with and represents the corium. There are no concise and well-established names in English for the layers of this dermic coat, which in the text to Figs. 1489 and 1491 I have called *outer fibrous layer*, *inner fibrous layer*, and *hyaline layer*, respectively, these terms being literal translations of the German names used by the author in the original. Macalister describes these layers in the following words (*op. cit.*, p. 94): "(1) A condensed layer of the *stratum reticulare* of the corium, with longitudinal fibres and connective cells, lying upon (2) a modified extension of the papillary layer, with transverse, flattened connective cells and a few unstriped fibres; (3) a homogeneous basement membrane internally." Quain describes the first and second layers in similar terms, and of the third layer he writes (*op. cit.*, vol. iii., part iii., p. 422): "The most internal layer (*hyaline layer*, *Kölliker*) is a transparent homogeneous membrane, marked transversely on its inner surface with some raised lines, and not reaching so high as

the mouth of the follicle; it corresponds with the *membrana propria* or *basement membrane* of allied structures." The looser connective tissue of the *outer fibrous layer*, the *circular fibres* of the *inner fibrous layer*, and the thin, structureless *hyaline layer*, are well shown in Fig. 1491. Next within the last-named is the broad *outer root-sheath*, consisting of several layers of polygonal cells (this corresponds with the Malpighian layer of the general surface of the skin), and then the trilaminar *inner root-sheath*, fully described in the last note. Finally we reach the *cortical* and then the *medullary substance* of the hair proper. (The *hair-cuticle* is not shown either in this figure or in any of the others.)

⁶⁶³ **Retinacula of the Skin* (Fig. 1493, p. 953).—"Clearly defined and firm connexions between the skin and subjacent structures also exist in the form of the so-called *retinacula cutis*; these are tense bands of connective tissue, which are usually attached to bony prominences, radiating thence to determinate areas of skin" (Von Langer and Toldt, *op. cit.*, p. 822). In this instance the **retinacula* pass from the *epicranial* or *occipitofrontal aponeurosis* (*galea aponeurotica*) to the skin covering that membrane. In English works on anatomy the intimate connexion between these two layers of the scalp is always described. Ellis, for instance, writes (*op. cit.*, pp. 2, 3): "Superficial to the aponeurosis are the vessels and nerves of the scalp and a small quantity of fat, which is traversed by numerous short fibrous bands uniting it closely to the skin." But neither this author, nor Quain, nor Macalister, denotes these fibrous bands by the name **retinacula cutis*.

⁶⁶⁴ *Lines of Cleavage of the Skin* (Figs. 1496, 1497, p. 954).—The subject of the "cleavage" (*Spaltbarkeit*) of the skin, which has important practical bearings on both dermatology and surgery, was first investigated by C. Langer and S. Swerchesky, and

was discussed at considerable length by O. Simon. A short account of the matter is to be found in Von Langer and Toldt's "Anatomie," 7th ed., pp. 824, 825; and the subject is also alluded to briefly by Crocker ("Diseases of the Skin," 1888, p. 13 *et seq.*), who gives a list of authorities.

⁶⁶⁵ *Hair-Streams and Hair-Wheels* (Figs. 1498, 1499, p. 955).—"Since the hair-follicles are inserted obliquely into the skin, the shafts or stems of the hairs are disposed in layers, and in those areas in which they are arranged in rows they form *hair-streams*, *fiumina filorum*. Where, on the other hand, the roots of the hairs approximate as they recede from the surface, *hair-whorls*, *vortices filorum*, are formed, as on the vertex crani. Such a whorl is also occasionally met with over the coccyx, the *coccygeal whorl*, *vortex coccygeus*" (Von Langer and Toldt, *op. cit.*, p. 826).

⁶⁶⁶ *Vallum Unguis* (Figs. 1502, 1503, 1505, p. 956).—This name (*Nagelwall* in the vernacular) is given in Germany to the fold of skin surrounding and overlapping the nail and forming the outer boundary of the marginal groove of the nail-bed (*sulcus matrix unguis*). Macalister, however, distinguishes between the portion of the *vallum* overlapping the root or concealed margin of the nail and the portions overlapping the lateral margins of the nail, terming the former *nail-fold* and the latter *nail-walls* (*op. cit.*, p. 277).

⁶⁶⁷ *Epidermic Portion of the Nail, or Nail proper* (Figs. 1504, 1505, p. 956).—In Fig. 1504 Toldt describes this as the *stratum corneum*, and Quain (*op. cit.*, *tom. cit.*, p. 410) also says that this part of the nail "corresponds in nature with the horny layer." According to Macalister, however (*op. cit.*, p. 277), this part of the nail "represents an enormously developed *stratum lucidum*, over the base of which is a soft fold, the partially developed *stratum corneum*, or *eponychium*." See also note ⁶⁵⁹ above.

PRINCIPAL WORKS OF REFERENCE CONSULTED BY
THE TRANSLATOR IN PREPARING THE ENGLISH
EDITION OF TOLDT'S "ATLAS OF
HUMAN ANATOMY."

VON LANGER AND TOLDT : *Lehrbuch der Systematischen und Topographischen Anatomie*, 7te Auflage, 1902.

QUAIN : *Elements of Anatomy*, 10th ed., 1890-1896.

MACALISTER : *Text-Book of Human Anatomy*, 1889.

ELLIS : *Demonstrations of Anatomy*, 10th ed., 1887.

YOUNG : *Synopsis of Human Anatomy*, 1889.

FOSTER : *Text-Book of Physiology*, 5th ed., 1888-1892.

HALLIBURTON : *Hand-Book of Physiology*, 4th ed., 1901.

GOWERS : *Manual of Diseases of the Nervous System*, 2nd ed., 1902, 1903.

NETTLESHIP : *Diseases of the Eye*, 6th ed., 1897.

TREVES AND LANG : *German-English Dictionary of Medical Terms*.

INDEX
TO THE
NEUROLOGY
AND TO THE
ORGANS OF THE SENSES

INDEX

TO THE NEUROLOGY AND TO THE ORGANS OF THE SENSES

Certain names in this Index have an asterisk (*) prefixed; these, as more fully explained in the Translator's Preface being terms that form part of the English nomenclature used in this work, but which are not commonly employed by English anatomists. To other names a dagger (†) is prefixed; these are Latin names used by the author in the original work, but not included in the official nomenclature of the "Anatomische Gesellschaft." Abbreviation: App.= Appendix.

A.

- ACCESSORY** cartilage of the Eustachian tube, 929
cartilages of the nose, 942
cavities of the nose, 944
- Acervulus (cerebri), or brain-sand,** 789
- Aditus ad aquaeductum cerebri,** 764, 791
orbitæ, 910
- Aequator bulbi,** 892
lentis, 895, 900
- Agger nasi,** 944
- Ala cinerea,** 768
lobuli centralis, 770, 771
nasi, 942, 944, 946
- Alveolar plexus,** see "Plexus, dental"
- †Alveus,** 785
- Ampulla or ampullæ:**
 - ductus lacrimalis, 912, 913
of the lachrymal canaliculus, 912, 913
 - membranacea, 936-938
of the membranous semicircular canals, 936-938
 - osseæ, 930-933, 935, 938
of the osseous semicircular canals, 930-933, 935, 938
- Amygdala (of the cerebellum),** 770-773
- Angle of the anterior chamber,** 892
- Angulus iridis,** 892
oculi (lateralis, medialis), 908, 910
- *Annulus ciliaris,** 894, 896, 901 and App., note 482
- * conjunctivæ,** 902, 910, and App., note 493
fibrocartilaginæs (membrana tympani), 925
fibrosus, 925
- * iridis major,** 896 and App., note 487
- * minor,** 896 and App., note 487
tendineus communis (Zinnii), 903, 905
- tympanicus,** 924, 926
- Ansa cervicalis,** 817, 877, and App., note 421
superficialis, 870, 871, and App., note 460
- * hypoglossi,** 817, 877, and App., note 421
infrahyoidea, 817, 877, and App., note 421
- lenticularis,** 792, 797
- * peduncularis,** 792 and note, 797
(of the spinal nerve roots), 812 and note, 873
- subclavia (Vieussensii),** 816, 878, 884, 887
- of Vieussens,** 816, 878, 884, 887
- Anthelix,** 920
- Antihelix,** 920
- Antitragus,** 920, 922, 923
- Antrum of Highmore,** 918, 944-947
mastoid, 919, 926, 927, 932
tympanicum, 919, 926, 927, 932
- Aortic plexus,** see "Plexus, aortic"
- Apertura externa aquaeductus vestibuli,** 933
† interna aquaeductus vestibuli, 930
canalicularis cochlearæ, 930, 934
lateralis ventriculi quarti, 767, 802
mediaea ventriculi quarti, 767, 802
piriformis, 905
sinus frontalis, 944
maxillaris, 944, 945, 947
sphenoidalis, 944, 945

- †Apertura vestibularis cochlearæ,** 931, 932, 935, 937
- *Aperture of the fourth ventricle,** lateral, 767
nasal, anterior, 905
median, 767, 802
- Apex columnae posterioris,** 754, 755
cornu posterioris, 754 and note, 755, and App., note 389
nasi, 942
of the posterior grey column, 754 and note, 755, and App., note 389
- Apparatus, lachrymal (apparatus lacrimalis),** 911-913
- Aqueductus cerebri (Sylvii),** 761, 763, 764, 770, 789, 791
vestibuli, 930, 931, 933
- Aqueduct of the cochlea,** 930, 931
- of Sylvius,** 761, 763, 764, 776, 789, 791
anterior extremity of, 764, 791, and App., note 364
- of the vestibule, 930, 931, 933
- Arachnoid,** cranial, 779, 802, 803, 904
spinal, 755, 758, 789, 802, 803, 808
- Arachnoidæ encephali,** 779, 802, 803, 904
spinalis, 755, 758, 759, 802, 803, 808
- Arbor vitae cerebelli,** 764, 776
- Arborization,** App., note 321
terminal, 756
- Arc, reflex,** 757
- Arch,** arterial, tarsal, 910
of the stapes, App., note 518
- Arched or arcuate fibres,** see "Fibres, arcuate"
- Arcus tarsicus,** 910
- Area or areas:**
 - acustica, 768, 787
 - of Broca, 777, 793, 795
 - * of the cochlea (area cochlearæ), 932, 934, 935, and App., note 534
 - cibrosa media, 934, 935, and App., note 532
 - superior, 932, 935, and App., note 531
 - cutaneous, of the brachial nerves, 835
of the crural nerves, 835
of the nerves of the lower extremity, 851
of the trunk, 811
of the upper extremity, 835
 - * of the facial nerve (area nervi facialis), 934, 935, and App., note 538
 - * parolfactory (area parolfactoria Brocæ), 777, 793, 795
 - vestibularis inferior, 934, 935
superior, 932, 935
- Arnold, ganglion of,** see "Ganglion, otic"
- nerve of, 868, 876
- reticulated white substance of, 785
- Arteria vel arteriæ:**
 - audita interna, 940
 - centralis retinae, 897, 899, 915, 916
 - chorioidea, 784
 - ciliares, 895
anteriores, 893, 895, 897
posteriores breves, 894, 897, 899
longæ, 894, 897
 - conjunctivales (anteriores, posteriores), 897
 - episclerales, 893, 897
 - haloidea, 915, 916

- Arteria, *vel arteriae*:
 meningeæ media, 905-907
 ophthalmica, 804, 868, 906, 915
 spinæ, 754
 Arteriole retinae, 898
 Artery or arteries:
 auditory, internal, 940 and App., note 551
 central, of the retina, 897, 899, 915, 916
 choroid, anterior, 784
 ciliary, 895
 anterior, 893, 895, 897
 posterior, long, 894, 897
 short, 894, 897, 899
 conjunctival, anterior, 897
 posterior, 897
 episcleral, 893, 897
 hyaloid, 915, 916
 meningeal, middle or great, 905-907
 ophthalmic, 804, 868, 906, 915
 of the retina, central, 897, 899, 915, 916
 nasal, inferior, 895
 superior, 898
 temporal, inferior, 898
 superior, 898
 spinal, 754
 Articulatio incudomalleolaris, 925
 incudostapedialis, 925
 Association bundle, see "Bundle, association"
 fibres, see "Fibres, association"
 Attachment of the choroid plexus of the lateral ventricle,
 inner layer, see "Tænia fornicis" and "Tænia fimbriæ"
 Attachment of the choroid plexus of the lateral ventricle,
 outer layer, see "Tænia chooroidea"
 Attachment of the velum interpositum along the pineal
 stria, see "Tænia thalamii"
 Atrium of the middle meatus of the nose (atrium meatus
 nasi medii, region of the atrium), 903, 905, 944
 Auditory ossicles, 918, 919, 925
 stræ, 768, 787
 triangle, 768, 787
 vesicle, 762, 858
 Auricle, 918-920
 Auricula, 918-920
 †Auris externa, 918-924
 interna, 918, 930-940
 † media, 918, 925-929
 Axis of the eye, 892
 external, 892
 internal, 892
 of the lens, 900
 lenticis, 900
 oculi, 892
 externa, 892
 interna, 892
 optic, 892
 optica, 892
 of the optical system, 892
 of vision, 892
 visual, 892
 Axis-cylinder, 746
 process, 747, 750, and App., note 321
 Axon, 747, 750, and App., note 321
- B.**
- Baillarger, line of, outer, 785
 Band of Reil, covered, see "Cingulum"
 vascular, of the canal of the cochlea, 939
 Basal plate of the stapes, see "Base of the stapes"
 Base of the brain, 774
 of the cochlea, 931, 933
 of the modiolus, 934, 935, 937, 939, and App., note 539
 of the posterior grey column, 786 and note, also App., note 339
 horn, 786 and note, also App., note 339
 of the stapes, 925, 926, 932
 Basilar membrane, 939
 portion of the pons Varolii, 787, 788
 Basis cochlearia, 931, 933
 † columnæ posterioris, 786
- Basis cornu posterioris, 786, note
 † encephali, 774
 modioli, 934, 935, 937, 939
 pedunculi, 775, 785, 788-790, 792
 stapedis, 925, 926, 932
 Bloodvessels of the eyeball, 897, 898
 of the labyrinth, 940
 of the skin, 950
 Body or bodies:
 ciliary, 893, 895
 rudiment of, 915
 of the corpus callosum, 780, 783-785, 790, 794, 802, 808
 of the fornix, 764, 781, 783, 785, 795
 geniculate, 761
 external or lateral, 765-767, 769
 internal or mesial, 766-768, 789, 796
 of the incus, 923, 925, 926
 of the lateral ventricle of the brain, 781, 784, 785, 922
 of nail, 956
 olfactory, 752, 753, 763, 765, 766, and App., note 327
 Pacchionian, 779, 802
 Pacinian, see "Corpuscle, Pacinian"
 pineal, 761, 764, 767, 776, 782, 789, 791, 794, and App., note 365
 transversæ frenulum of, see "Commissure of the habenulae"
 pituitary, 760, 761, 764, 774, 776, 802, 808
 quadrigeminal, 760-764, 766-768, 791, note 5 to p. 760, and App., note 372
 inferior or posterior, 767, 791, 796, and App., note 372
 superior or anterior, 767, 789, 796, and App., note 372
 restiform, 765, 771-773, 786, 787
 of sudoriferous gland or sweat gland, 950, 953
 tarsal, see "Tarsus"
 touch, App., note 324
 turbinata, see "Turbinata"
 vitreous, 892, 900
 rudiment of, 914, 915
 Border of the cerebral hemisphere, upper mesial, 778
 Bowman's membrane, 748, 893
 Brachial plexus, see "Plexus, brachial"
 Brachium conjunctivum, 760, 761, 766-768, 771-773, 788, 789
 pontis, 765-769, 771-773, 791
 of the quadrigeminal bodies, inferior or posterior, 766, 767, 789
 superior or anterior, 767
 quadrigeminum inferius, 766, 767, 789
 superius, 767
 Brain, coronal sections of, 791-793
 course of fibres of, 796-801
 divisions of, 760, 761
 development of, 762, 763
 horizontal sections of, 794, 795
 transverse sections of, 786-790
 Brain-sand, 786
 Branch, ascending or carotid, of the superior cervical ganglion, 816, 859, 874, 876, 884, 886
 Branches, mammary, 815 and note
 Broca, area of, 777, 793, 795
 Bruch, membrane of, 895 and App., note 486
 Bulb of the optic, see "Corpus albicans"
 of the hair, 952, 953
 of the internal jugular vein, 804, 806, 807
 olfactory, 774, 775, 803, 807, 862
 of the posterior horn (of the lateral ventricle), 781, 791
 Bulbus cornu posterioris, 781, 791
 oculi, 892, 902, 904, 905, 909, 910
 † facies inferior, 892, 902
 nasalis, 892
 † superior, 892, 902
 temporalis, 892
 olfactarius, 755, 774, 803, 807, 862
 pili, 952, 953
 venæ jugularis superior, 804, 806, 807
 Bulla, ethmoidal (bulla ethmoidalis), 944, 945

Bundle or bundles:

- * association, anterior, 801 and App., note 406
- crustal, of the fillet, 796 and App., notes 397 and 405
- longitudinal, dorsal, 764, 769, 772, 787-789, 791, 799
- inferior, 801 and App., note 406
- posterior, 764, 769, 772, 787-791, 791, 799
- superior, 801 and App., note 406

Meynert's, 791

of the optic tract, crossed, 798
uncrossed, 798primary, of peripheral nerves, App., note 320
pyramidal, of the pons, 764, 787, 789secondary, of peripheral nerves, App., note 320
solitary, see "Funiculus solitarius"

Vienna d'Azys's, 783, 785, 792

Burdach, column of, 756 and App., note 348
tract of, 756 and App., note 348

Bursa trochlearis, 903, 904

C.

Cæcum, cupular (cæcum cupulare), 936 and App., note 545
vestibular (cæcum vestibulare), 936 and App., note 545

Calamus scriptorius, 764, 768, 786

Calcar avis, 781, 782, 791, 794

Calculus ophthalmicus, 914, 915

Camera oculi anterior, 892, 893, 898

posterior, 892, 893

Canal or canals:

central, of the spinal cord, 754, 755, 786

of the cochlea, 936, 937, 939

osseous, spiral, 934 and App., note 558

of the modiolus, central, 934, 935, and App., note 539

longitudinal, 934 and App., note 539

spiral, 934

* musculotubular, 929, 933, 934, and App., note 528

nasopalatine, 943, 946

of Scarpa, 562 and App., note 451

of Schlemm, 893, 897

semicircular, membranous, 936, 938

osseous, 918, 919, 930-933, 935, 938

of Stensen, 943, 946, and App., note 451

Canalculus cochlear, 930, 931

lachrymal, inferior, 912, 913, 915

superior, 912

Canalis vel canales:

centralis (medullæ spinalis), 754, 755, 786

modioli, 934, 935

cochleæ, see "Canal of the cochlea"

longitudinalis modioli, 934

membranaceus cochleæ, see "Canal of the cochlea"

musculotubularis, 929, 933, 934

reuniens (of Hensen), 936

Schlemm's [Lauthi], 893, 897

semicirculares ossei, 918, 919, 930-933, 935-938

spiralis cochleæ, 934

modioli, 934

utriculosaccularis, 936

Canthus of the eye, inner, 908, 910, and App., note 498

outer, 908, 910, and App., note 498

Cap, grey, 789 and App., note 400

Capilli, 953

Capitulum mallei, 922, 924-926

stapedis, 925

Capsula externa, 799, 792-795

interna, 766, 790-797, 900

lentis (crystallinae), 893, 895, 900, 915, 916

nuclei dentati, 772, 773

Capsule, connective-tissue, of terminal corpuscles of sensory

nerves, 749 and App., note 326

* of the dentate nucleus, 772, 773, and App., note 384

external, 799, 792-795

internal, 766, 790-797, 900

of the lens, 893, 895, 900, 915, 916

of Tenon, 906, 907

† Caput columnæ posterioris, 754, 755, 786

cornu posterioris, 754, 755, note, 786, note, also App., note 339

corporis striati, 780-782, 784

Caput nuclei caudati, 766, 790, 793-795

Cardiac plexus, see "Plexus cardiac"

Carotid plexus, see "Plexus, carotid"

Cartilage or cartilages:

accessory, of the Eustachian tube, 929

of the nose, 942

alar, greater, 942-944, 946, 947

lesser, 942 and note

of the aperture, 942-944, 946, 947

of the auricle, 921

of the external auditory meatus, 920-922

Eustachian, 928, 929

of Jacobson, 943 and App., note 553

lateral, lower, 942-944, 946, 947

upper, 942-944

nasal, 942, 943

of the nose, 942, 943

accessory, 942

of the pinna, 921

quadrate, accessory, 942 and note

septal, 942, 943, 946, 947

lateral expansion of, see "Cartilage, lateral, upper"

of the septum of the nose, 942, 943, 946, 947

sesamoid (of the nose), 942

vomerine, 943 and App., note 553

Cartilago vel cartilagines:

alares minores, 942

alaris major, 942-944, 946, 947

auricula, 921

meatus auditorii exteriori, 930-922

nasi, 942, 943

lateralis, 942-944

septi nasi, 942, 943, 946, 947

sesamoideæ (nasi), 942

tuba auditiva, 928, 929

vomeronasalis [Jacobsoni], 943

Caruncle, lachrymal, 908-910, 912, 915

Caruncula lacrimalis, 908-910, 912, 915

Cauda corporis striati, 767, 781, 782, 784

equina, 753, 758

helicis, 921

nuclei caudati, 766, 785, 791, 794, 795

Cavernous plexus, see "Plexus, cavernous"

Cavity, accessory, of the nose, 944

Cavity, nasal, 941-948

tympanic, 918, 919, 926-928

* Cavum conche, 920, 923, and App., note 508

epidurale, 758, 759

nasi, 941-948

septi pellucidi, 781

subarachnoideale, 755, 759, 779, 802, 803

subdural, 759, 803

tympani, 918, 919, 926-928

Cell or cells:

body of nerve cell, 747

* commissural, 756 and App., note 549

ethmoidal, 905, 945

Golgi's, 756 and App., note 350

* intercalary, 756 and App., note 350

mastoid, 926, 927

solitary, 756 and App., note 350

tactile, 749

tympanic, 923

Cellula ethmoidale, 905, 945

mastoidæ, 926, 927

tympanica, 923

Central canal of the spinal cord, 754, 755, 786

lobe, 779, 790, 792-795

nervous system, 751-808

* tract of the auditory nerve, 796 and note

Centre of the cornea, 892

medullary, of the cerebellum, 772, 773, 776

of the cerebrum, see "Centrum ovale"

Centrum ovale majus, 780 and note

minus, 780, note

semiovale, 780

Cerebellar tract, see "Tract, cerebellar"

Cerebellum, 760-764, 770-773, 808

Cerebrum, 761, 774-785

- Cerebrum, convex or outer surface (*facies convexa*), 776-779
 inferior surface or base (*facies basalis*), 774, 775
 inner or mesial surface (*facies med.*), 776, 777, 783
- Cervical plexus, see "Plexus, cervical"
- Cervix columnae posterioris, 754, 755, 786
 cornu posterioris, 754, 755; note, 786, note, and App., note³³⁹
- Chamber of the eye, anterior, 892, 893, 898
 posterior, 892, 893
- Chiasma opticum, 763-766, 774-776, 792, 793, 798, 804, 805, 815
- † Chorda œsophagea anterior, 872, 879, 889
 † posterior, 872, 888, 889
- † tympani, 859, 863, 864, 867-869, 923
- Chorioepithelialis, 892-899, 901, 915
- Choroid coat of the eyeball, 892-899, 901, 905
 plexus, see "Plexus, choroid"
- Choroidal fissure, 914, 915, and App., note⁵⁰⁷
- Cilia, 908, 910
- Ciliary body, 893, 895
 rudiment of, 915
 bundle, 909, 910
 * folds, 895 and App., note⁴³⁴
 ganglionated plexus, 894, 896, and App., note⁴⁸³
 muscle, 892-897, 901
 processes, 892, 893, 895, 897, 901
- Cingulum, 801 and App., note⁴⁰⁶
- Circulus arteriosus (iris), major, 893, 897
 minor, 897
 major (of the iris), 893, 897
 minor (of the iris), 897
- Cisterna cerebellomedullaris, 802
 chiasmatis, 802, 803
 corporis callosi, App., note⁴⁰⁹
 fissura lateralis cerebri, 802, 803
 interpeduncularis, 802, 803
 lamina cinerea, App., note¹⁰⁹
 peripeduncularis, App., note⁴⁰⁹
 † pontis, 802, 803
 vena cerebri magna, 802
- Cisternae subarachnoidales, 785, 802, 803
- Clark's column, 755 and App., note³³⁹
- Clastrum, 790-795
- Clava, 752, 753, 766, 768
- Cleavage, lines of, 954 and App., note⁶⁶⁴
- Cleft, palpebral, 908
- Clefts, subarachnoid, App., note⁴⁰⁹
- Clivus monticuli, 770, 772
- Coat of the eyeball, choroid, see "Choroid"
 external, 892
 fibrous, 892
 middle, 892
 sclerotic, see "Sclerotic"
 vascular, 892
- Cochlea, 918, 919, 930, 931, 934
 area of the, 932, 934, 935, and App., note⁵³⁴
- Collaterals, 747, 750, 755-757 and App., note²⁰¹
- Colliculus corporis quadrigemini inferior, 767, 791, 796
 superior, 767, 789, 796
 facialis, 768, 787
- Column folliculi pilii, 952
 mallei, 823-825
- Coloboma of the choroid, App., note⁵⁰⁷
 of the iris, App., note⁶⁰⁷
 oculi, 914, 915
- Columnella cochlearis, see "Modiolus"
- Column or columns:
 of Burdach, see "Column, posterolateral"
 cuneate, 752-754, 766, 768, 796
- of Goll, see "Column, posteromedian"
 posterolateral, 756 and App., note³³⁸
 posteromedian, 756 and App., note³⁴⁸
 slender, 752-754, 766, 768, 786, 796
 of the spinal cord, grey, 754, 755, 786, and App., n.²³⁹
 white, anterior, 752-754 and App., note³²⁰
- lateral, 752-754, 765, 766, 768, and App., note²³⁰
 posterior, 752-754, 796, and App., note³³⁰
- Column of Türrck, see "Tract, pyramidal, anterior"
 vesicular, of Lockhart Clarke, 755 and App., note³³⁹
- Columna vel columnæ:
 fornicis, 776, 781-784, 790-795
 medullæ spinalis, 754, 755, 786
 nasi, 913, 942, 943
- Commissura basocaudalis (of Henle), 776 and App., note³⁸⁷
 (cerebri), anterior, 763, 764, 766, 782, 783, 792,
 793, 795
 pars anterior, posterior, 801
 posterior, 764, 768, 789, 791
- habenularum, 764, 767, 782, 791
- hippocampi, 784, 795
- inferior [Guddeni], 793
 (medullæ spinalis), anterior (alba, grisea), 755
 posterior, 755
 palpebralrum (lateralis, medianis), 908
 superior [Meynerti], 792
- * Commissural cells, 756 and App., note³⁴⁹
- Commissure of the cerebrum, anterior, 763, 764, 766, 782,
 783, 792, 793, 795, and App., note⁴⁰⁶
 anterior or olfactory portion, 801 and App., note⁴⁰⁸
 posterior or temporal portion, 801 and App., note⁴⁰⁸
 middle or soft, 764, 776, 782,
 792, 794
 posterior, 764, 768, 789, 791
- * of the eyelids, inner, 908 and App., note⁴⁹⁸
 outer, 908 and App., note⁴⁹⁸
- great, see "Corpus callosum"
 of Gudden, 793
- of the habenula, 764, 767, 782, 791, and App., note³⁶⁵
 inferior, 793
- Meynert's, 792
 optic, 763-766, 774-776, 792, 793, 798, 804, 805,
 815
- of the spinal cord, anterior or white, 755 and App., note³¹¹
 posterior or grey, 755 and App., note³⁴¹
- * superior, 792
- Conarium, see "Body, pineal," and App., note³⁶⁵
- Concha (of the auricle), 920, 922
 auricula, 920, 922
 nasalis inferior, 903, 913, 914, 944, 945
 media, 913, 914, 944, 945, 948
 superior, 913, 944, 945, 948
 suprema [Santorini], 945 and App., note⁵⁵
- Cone cell, 899 and App., note⁴⁹¹
 of fat, orbital, 902, 906, 907, 911
 fibrous (of the cerebrum), see "Corona radiata"
- Cones, retinal, 899
- Confluence of the sinuses (of the dura mater), 804, 808, 860
- Confluens sinuum, 804, 808, 860
- Conjunctiva bulbis, 833, 907, 908, 910
 lymphoid follicles of the, 910
- ocular, 833, 907, 908, 910
 palpebral, 907, 908, 910
 palpebrarum, 907, 908, 910
- Connective tissue, episcleral, 892, 893, 895
 epivaginal, 899
- Constriction of Ranvier, see "Node of Ranvier"
- Contraction-folds of the iris, 896 and App., note⁴⁸⁷
- Comus medullaris, 752-754
 terminals (of the spinal cord), 752-754
- Convolution parietal, inferior, 777 and note, 778
 superior, 777, 778
 see also "Gyrus"
- Cord of the brachial plexus, inner or lower, 822, 823, and App., note⁴²⁶
 middle or posterior, 823 and App., note⁴²⁸
 outer or upper, 822, 823, and App., note⁴²⁸

Cord, great ganglia, of the sympathetic:
 cervical portion, 884
 lumbar portion, 885
 sacral portion, 885
 thoracic portion, 885
 lumbosacral, 836, 856, 885
 cesophageal, anterior, 872, 879, 889, and App., note 464
 posterior, 872, 888, 889, and App., note 464
 spinal, see "Spinal cord"
 sympathetic, see "Sympathetic, great ganglia, cord of"

Corium, 950, 951, 953
 Cornea, 892-894, 908, 910, 914, 915

Cornu Ammonis, see "Hippocampus major"
 anterior ventriculi lateralis, 781, 782, 784, 790, 792-794
 inferior ventriculi lateralis, 781, 782, 784, 785, 790-792,
 794, 795

posterior ventriculi lateralis, 781, 782, 784, 791, 794
 Cornua of the grey matter of the spinal cord, see "Columns
 of the spinal cord, grey," and App., note 339

Corona ciliaris, 895, 901, 906, and App., note 498
 radiata, 790, 797, 800

* peduncle of the, see "Capsule, internal"

Coronary plexus, see "Plexus, coronary"

Corpus *vel* corpora:

adiposum orbitae, 902, 906, 907, 911
 albicans, 764-766, 774, 776, 783, 790, 792
 callosum, 763, 764, 771, 778, 780, 781, 783, 791-795, 801
 ciliare, 893, 895
 fimbriatum, see "Tenia hippocampi"
 formicis, 764, 781, 783, 785, 795
 geniculatum, 761
 geniculatum laterale, 765-767, 769
 mediale, 766-768, 789, 796
 glandulae sudoriferae, 950, 953
 incudis, 923, 925, 926
 Laysi, 785, 791, 792, 797
 mamillare, 764-766, 774, 776, 783, 790, 792
 medullare cerebelli, 772, 773, 776
 papillare (corii), 950, 956
 pineale, 761, 764, 767, 776, 782, 789, 791, 794
 quadrigemina, 760-764, 766-768, 791
 restiforme, 765, 771-773, 786, 787
 striatum, 760-763, 767, 750-782, 784
 subthalamicum, 785, 791, 792, 797, and App.,
 note 469
 trapezoides, 787, 796
 trapezoidum, 787, 796
 unguis, 956
 vitreum, 892, 900

Corpuscle, bulboid, 749

Pacinian, 749, 834, and App., note 325
 of Purkinje, 747
 tactile, 749, 950, and App., note 324

of Vater, see "Corpuscle, Pacinian"

Corpuscula bulboidea [Krause], 749
 lamellosa [Vater, Pacini], 749, 834
 nervorum terminalia, 749
 tactus [Meissner], 749, 950

Cortex of the cerebellum, 764, 772

of the cerebrum, 785

of the lens, 893, 900

of hair, 952

Corti, organ of, 939

Course of the fibres of the brain, 796-801
 of the spinal cord, 756, 757

Covered band of Reil, see "Cingulum
 Crest, lachrymal, of the lachrymal bone, 912, 913
 lateral, of the septum (var.), 945, 946, and App.,
 note 555

transverse, 930, 932, 934, 935

of the vestibule, 930, 931, 933

Crista *vel* crista:

acustica, 936, 938, and App., note 543

ampullaris, 936, 938

cutis, 950, 956

falciformis, 930, 932, 934, 935

lacrimalis anterior, 912, 913

posterior, 912, 913

lateralis septi (nasi), 945, 946

Crista *vel* crista:

matricis unguis, 956
 spiralis, 939, note
 transversa, 930, 932, 934, 935
 vestibuli, 930, 931, 933

Crus or crura:

ampullary (crura ampullaria), 930, 935, and App.,
 note 529

of the antihelix (crura anthelicis), 920

cerebelli ad cerebrum, see "Peduncle of the cere-
 bellum, superior"

ad medullam, see "Peduncle of the cere-
 bellum, inferior"

ad pontem, see "Peduncle of the cerebellum,
 middle"

cerebri, 760, 761, 765-768, 774, 789-791

common, 930, 931, 933, 935, and App., note 529

commune, 930, 931, 933, 935

curvilineum stapedis, App., note 518

fornicis, 783, 784, 794, 795

of the helix (crus helicus), 920, 922, 923

incidus breve 925

longum, 923, 925, 927

rectilineum stapedis, App., note 518

simple (crus simplex), 930, 931, and App., note 529

of the stapes, anterior (crus stapedis anterior), 925 and
 App., note 518

posterior (crus stapedis posterior), 925

and App., note 518

Crusta of the cerebral peduncle, 775, 785, 788-790, 792
 of the crus cerebi, 775, 785, 788-790, 792

*Crustal bundle of the fillet, 788, 796, and App., notes 397
 and 405

*Crypts of the iris, 896 and App., note 487

Culmen monticuli, 770-772

Cuneus, 777, 783, 795, 798

Cup, optic, 914, 915

physiological, 892, 898, 899

Cupola of the cochlea, 930, 931, 933, 937

Cupula cochlea, 930, 931, 933, 937

*Cupular portion of the epiptympanic recess, 922, 925, 926,
 and App., note 511

Cushion of the Eustachian orifice, 919, 928, 946

levator, 928, 944, and App., note 527

Cutaneous area, see "Area, cutaneous"

nerve, see "Nerve, cutaneous"

Cuticle, 950, 951

Cutis, 950, 951

vera, see "Corium"

*Cymba conchæ, 920, 923, and App., note 508

D.

Dartos, 951

Darwin, tubercle of, 920

Decline, 770, 772

Decussatio fibrarum cerebralis, 796-801

spinalium, 756, 757

Decussatio brachii conjunctivi, 764, 772, 788, 797

lemniscorum, 786, 796

nervorum trochlearium, 766, 788

pyramidalum, 752, 753, 765, 786, 790, 800

Decussation of the brachia conjunctiva, 764, 772, 788, 797,
 and App., note 399

of the fillet, 786, 796, and App., note 394

pyramidal, 752, 753, 765, 786, 790, 800

superior, see "Decussation of the fillet," also
 App., note 394

sensory, see "Decussation of the fillet," also
 App., note 394

of the superior peduncles of the cerebellum,
 764, 772, 788, 797

tegmentum, 786 and App., note 399

of the trochlear nerves, 769, 788

Decussationes tegmentorum, 789

Deflexus plexus, see "Plexus of the vas deferens"

Deiters' nucleus, 769, note

Demours' membrane, 893

Dendrites, App., note 321

INDEX

- Dendron, 747, 750, and App., note 321
 Dental plexus, see "Plexus, dental"
 Dentate gyrus, see "Gyrus, dentate"
 Derma, see "Corium"
 Descemet's membrane, 893
 Development of the eye, 914-916
 Diaphragm, pituitary, 805, 808, and App., note 411
 orifice of, 804
 Diaphragma sellae, 805, 808
 Diencephalon, 760-762
 Digitations of the hippocampus major (digitationes hippocampi), 782, 792
 Division of spinal nerve, primary, anterior, 759, 810, 812
 posterior, 759, 810-813
 Dorsal portion of the pons Varolii, 788
 Duct nasal, 905, 906, 912, 913, 944-947
 sudoriferous, 950, 951, 953
 Ducts, excretory, of the lacrimal gland, 910, 911
 Ductuli excretorii glandulae lacrimalis, 910, 911
 Ductus cochlearis, 936, 937, 939
 endolymphaticus, 936, 937
 incisivus, 943, 946
 lacrimalis (inferior, superior), 912, 913, 915
 nasolacrimalis, 905, 906, 912, 913, 944-947
 perilymphaticus, 937 and App., note 547
 reunius [Hensenii], 936
 semicirculares, 936, 938
 sudoriferous, 950, 951, 953
 utriculosaccularis, 936
 Dura mater, cranial (dura mater encephali), 803-808, 902-904
 spinal (dura mater spinalis), 753, 758, 759, 806-808, 873
- E.**
- Ear, 917-940
 external, 918, 920-924
 rudiment of, 914
 internal, 918, 930-940
 middle, 918, 925-929
 Ear-cartilage, 921
 Edge of the cornea, 892, 893, 908
 of the eyelid, anterior, 908, 910
 posterior, 908, 910
 of nail, 956
 Elbow of the internal capsule, see "Knee of the internal capsule," also App., note 404
 Eminence, collateral, 782, 785, 791, 794
 of the concha, 920-922
* facial, 768, 787, and App., note 378
* of Jacobson, 943 and App., note 554
 Eminences, vascular, of the iris, 866
 Eminentia collateralis, 782, 785, 791, 794
 conchæ, 920-922
 fossa triangularis, 920, 921
 medialis (fossa rhomboidea), 768, 787
 papillaris, 923, 927, 931
 pyramidalis, 923, 927, 931
 scaphæ, 920, 921
 teres, 768, 787, and App., note 378
 Emissaria [Satorini], 806
 Emissarium condyloideum, 806
 mastoideum, 804, 806, 807
 occipitale, 806
 parietale, 806
 Emissary vein, see "Vein, emissary"
 End-bulb, spheroidal (of Krause), 749
 End-organ, motorial, 749 and note, 750
 End-plate, motorial, see "End-organ, motorial," and also
* footnote to p. 749
 Ending of motor nerve fibres, 794, 750
 Ending of sensory nerve fibres, 748-750 and App., note 323
 Endoneurium, 746 and App., note 320
 Endothelium of the anterior chamber of the eyeball (endothelium camerae anterioris), 893
 Enlargement, brachial, App., note 329
 cervical, 752, 755, and App., note 329
 crural, App., note 329
 lumbar, 752 and App., note 329
 Entrance to the orbit, 910
 Epencephalon, 760 and note, 761, 762
 Ependyma (ventriculorum), 765, 785-787
 Epidermis, 950, 951, 953, 956, and App., note 558
 Epiglottic plexus, see "Plexus, solar"
 Epineurium, App., note 320
 Epiphysis cerebri, see "Body, pineal," and App., note 365
* Epithalamus, 760, 761, and App., note 354
 Epithelium of the (choroid) plexuses, App., note 374
 of the cornea (epithelium corneæ), 893
 of the lens capsule (epithelium lentis), 893
 Epitympanic recess, 924-928, 932
 cupular portion of the, 922, 925, 926, and App., note 511
 Episcleral connective tissue, 892, 893, 895
 Equatorial connective tissue, 899
 Equator of the eyeball, 892
 of the lens, 895, 900
 Ergot, see "Hippocampus minor"
 Eustachian tube, 918, 919, 924, 926, 928, 929, 946
 Excavation, optic, 892, 898, 899
 Excavatio papilla nervi optici, 892, 898, 899
 Excretory ducts, see "Ducts, excretory"
 External capsule, 790, 792-795
 ear, 918-924
 Eye, the, 891-916
 development of, 914-916
 globe of the, see "Eyeball"
 Eyeball, 892, 893, 902-905, 907
 horizontal section through, 892
 muscles of, 902-904
 position of, 904-907, 909
 vessels of, 897
 Eyebrow, 908
 Eyelashes, 908, 910
 Eyelids, 908-911, 913
 anterior surface, 908
 orbital portion, 908
 posterior surface, 909
 rudiments of, 914
 sagittal section of, 910
 tarsal portion, 908
- F.**
- * Facial eminence, 768, 787, and App., note 376
 Falx cerebelli, 805, 808
 cerebri, 763, 803-805, 808, 914
 major, see "Falx cerebri"
 minor, see "Falx cerebelli"
 Fascia bulb [Tenoni], 906, 907
 dentata (hippocampi), 763, 782, 783, 785, 791, 795
 palpebral, 907, 909
 of Tenon, 906, 907
 Fasciae musculares orbitæ, 906, 907
 Fasciculus or fasciculi (see also "Bundle"):
 anterior proprius [Flechsigi], 756, 757
 anterolateralis superficialis [Gowersi], 756
 cerebellospinalis, 756, 757, 797
 cerebrospinalis, anterior, 758, 800
 lateralis, 756, 757, 786, 800
 cuneatus [Burdachii], 756
 gracilis [Gollii], 756
 lateralis proprius [Flechsigi], 756, 757
 longitudinalis of the pons, 764, 787, 788, 790
 longitudinales (pyramidales) pontis, 764, 787-789,
 788, 790
 longitudinalis, inferior, superior, 801
 medialis, 764, 769, 772, 787-789,
 791, 799
 obliquus (pontis), 765, 766
 perpendicular, App., note 406
 plexus brachialis, 822, 823
 of the posterior commissure, tegmental, App., note 405
 retroflexus [Meynerti], 791
 from the tegmental tract to the lenticular
 nucleus, 792 and App., note 402
 teres, see "Funiculus teres" and App., note 376
 Thalamomamillary [Vicq d'Azyri], 783, 785, 792

- Fasciculus, uncinate** (*fasciculus uncinatus*), 801 and App., note 406
Fascicula cinerea, 763
***Fastigium**, 764, 772, and App., note 386
Fat, cone of, orbital, 902, 906, 907, 911
Fnestra cochlearia, 930, 931, 933-935
 ovalis, 927, 930-935
 rotunda, 930, 931, 933-935
 vestibularis, 927, 930-935
Fibrae arcuatae cerebri, 801
 externæ, 765, 766, 786, 787, 797
 internæ, 786, 797
 cerebello-olivares, 787, 797
 lents, 900
 pontis profunda, 788
 superficiales, 764, 787, 788, 790
 zonulares, 893, 895, 901
Fibres, arched, see "Fibres, arcuate"
 arcuate, external or superficial, 765, 766, 786, 787, 797, and App., note 383
 internal or deep, 786, 797
 association (of the cerebrum), short, 801 and App., note 406
 of the brain, course of, 796-801
 cerebello-olivary, 787, 797, and App., note 395
 ground, see "Ground fibres"
 of the lens, 900
 of the pons Varolii, transverse, deep, 788
 superficial, 764, 787,
 788, 790
 upper or oblique,
 765, 766
 of the spinal cord, course of, 756, 757
 of the suspensory ligament of the lens, 893, 895, 901, and App., note 430
 of the zonule of Zinn, 893, 895, 901, and App., note 430
Fifth ventricle, 781
Filia lateralia pontis, 766
 radicularia, 759, 786, 787, 789, 812
Filaments of the roots of the spinal nerves, 759, 812
Fillet of the corpus callosum, see "Cingulum"
 * **crustal bundle** of the, 788, 796, and App., notes 397 and 406
 decussation of the, 786, 796, and App., note 384
 interolivary layer of the, 786
 lower or lateral, 772, 788, 791, 796
 mesial, 786-789, 796, 797
 nucleus of the lower or lateral, 788, 796, and App., note 398
 portion of the tegmental tract, 796 and App., note 405
 tract of the, 796 and App., note 405
 triangle of the, 766, 768
 * **Filum** of the spinal dura mater (*filum durae matris spinalis*), 758 and App., note 353
 terminale, 752-754, 758
Fimbria (*hippocampi*), 782, 783, 785, 791, 794, 795, and App., note 392
Finger-tip, 956
Fissura antitragohelicina, 921
 calcarea, 777, 781, 794, 795
 cerebri lateralis [*Sylvii*], 774-776, 780, 793
 chorioidea, 763, 775, 783, 785
 collateralis, 775, 785, 791
 hippocampi, 783
 longitudinalis cerebri, 762, 774, 775, 778
 mediana anterior, 752-755, 763, 765
 posterior, 768, 786
 parieto-occipitalis, 776-778, 795
 prima (of His), 777
 serotina (of His), 777
 transversa cerebelli, 771
 cerebri, 762, 776, 808
 Fissure (see also "Furrow," "Groove," and "Sulcus"):
 * **antitragohelicine**, 921
 calcare, 777, 781, 794, 795
 callosomarginal, 777 and App., note 390
 choroidal (of the brain), 763, 775, 783, 785
 (of the developing eye), 914, 915, and App., note 307
- Fissure, collateral**, 775, 785, 791
 dentate, 763, 783
 hippocampal, 763, 783
 horizontal, great, of cerebellum, 770-772, and App., note 383
 lachrymal, 914
 longitudinal, great, of the cerebrum, 762, 774, 775, 778
 median, anterior, 752-755, 763, 765, and App., note 332
 posterior, of the medulla oblongata, 768, 786
 of the spinal cord, see "Groove, median, posterior," and App., note 332
paracentral, 777
 parallel, see "Sulcus temporal, first or superior"
 parieto-occipital, 776-778, 795
 prelimbic, 777
 of Rolando, 776, 778
 of Sylvius, 762, 763, 774-776, 780, 793
 transverse, of the cerebellum, 771 and App., note 383
 of the cerebrum, 762, 776, 808
Fissures of the brain (see also "Furrow," "Groove," and "Sulcus"), 775, 777, 778
Flecsisig, ground fibres of, see "Ground fibres"
Flexures, cerebral (flexures of the developing brain), 762
Floculi accessory, 771
 secundari, 771
Flocculus, 766, 767, 770-772, 774
 stalk of the, 767, 771
Floor of the tympanum, 926, 933
Flumina pilorum, 955
 subarachnoid, App., note 409
Fold or folds:
 * **ciliary**, 895 and App., note 434
 contraction, of the iris, 896 and App., note 487
 * **of the incus**, 925, 926, and App., note 515
Fold or folds of:
 of the laryngeal nerve, 875
 * **malleolar**, anterior, 924 and App., note 514
 posterior, 924 and App., note 514
nasopharyngeal, 928
salpingopalatine, 928
semilunar, of the conjunctiva, see "Plica semilunaris conjunctivæ"
 * **of the stapes**, App., note 515
tympanomalleolar, anterior, 924
 posterior, 924
Folia of the cerebellum, 770
Folium caecumini, 770, 772
 vermis, 770, 772
Follicle, hair-, 951-953
Follicles, lymphoid, of the conjunctiva, 910
Folliculus pili, 951-953
Foot-plate of the stapes, see "Base of the stapes"
Foramen cæcum (medullæ oblongatae), 764, 774
 diaphragmatis sellæ, 804
 interventriculare [Monroii], 763, 764, 776, 781, 783, 793
 of Majendie (foramen Magendii), 767, 802
 of Monroe, 763, 764, 776, 781, 783, 793
 occipital, inferior, see "Foramen magnum"
 superior (or *notch of the tentorium), 805, 860, and App., note 412
 singulare, 932, 934, 935
Formatio reticularis, 786
 alba, 786
 grisea, 786-788
Fornix, body of the, 764, 781, 783, 785, 795
 of the brain (fornix cerebri), 763, 764, 781, 783, 792, 794, 795, 808
 bulb of the, see "Corpus albicans"
 of the conjunctiva, inferior (fornix conjunctivæ inferior), 907, 908, 910
 superior (fornix conjunctivæ superior), 907, 910, 911
 of the lachrymal sac (fornix sacci lacrimalis), 912, 913
 pillar of, see "Pillar of the fornix"

- Fossa or fossae:
 of the antihelix (*fossa triangularis*), 920, 923, and
 App., note 509
 * (*fossa anthelicis*), 920, 921 and
 App., note 509
- cerebri lateralis [Sylvii], 762, 763
- floccular, 928 and note
- of the helix, 920
- hyaloidea, 904
- interpeduncularis [Tarini], 764, 765, 774, 789-792
- nasal, 941-948
- reniform, 930, 932, 933, 935
- rhomboidalis, see "Ventricle, fourth"
- rhomboideæ, 762, 767, 768, 772, 773, 786, 787
- pars inferior, 768, 786
- intermedia, 768, 787
- superior, 768, 788
- of Rosenmüller, 919, 946
- sacci lacrimalis, 913
- subarcuata, 938
- of Tarii, 764, 765, 774, 789-792
- triangularis, 920, 923
- Fossula of the fenestra ovalis, 923, 933
- rotunda, 923, 927, 933, 934
- fenestrae cochlearia, 923, 927, 933, 934
- vestibuli, 923, 933
- ovalis, 923, 933
- rotunda, 923, 927, 933, 934
- Fovea centralis, 892, 898
- of the fourth ventricle, inferior, 768
- superior, 768, 787
- hemimelliptica, 930, 931, 933
- hemispherica, 930, 931, 933
- inferior (fossa rhomboideæ), 768
- superior (fossa rhomboideæ), 768, 787
- Foveola coccigea, 955
- Frenulum lingule, 771
- transverse, of the pineal body, see "Commissure of the habenulae"
- velli, 767
- Frenulum veli medullaris antericris, 767
- Fundus of the eye, 898
- of hair-follicle (*fundus folliculi pili*), 952
- of the internal auditory meatus (*fundus meatus acustici interni*), 930, 932, 933, 935
- Funiculi medullæ spinalis (anterior, lateralis, posterior), 752-754, 755, 766, 768, 796
- of peripheral nerves, App., note 320
- Funiculus cuneatus, 752-754, 766, 768, 786, 796
- gracilis, 752-754, 766, 768, 786, 796
- solitarius, 769, 786, 787
- teres, 768, 787, and App., note 376
- Furrow, see "Sulcus," "Fissure," and "Groove"
- Furrows, flexion, 950
- of the skin, 950, 951
- G.**
- Galen, great vein of, 784, 789, 791
- veins of, 764, 784, 805
- Gangliated cord, see "Sympathetic" plexus, ciliary, 894, 896, and App., note 483
- Ganglion or ganglia:
 Andersch's see "Ganglion petrosal"
 of Arnold, see "Ganglion, otic"
 cardiacum (Wrisberg), 887
- cervical, inferior (ganglion cervicale inferius), 816, 878, 884, 887
- middle (ganglion cervicale medium), 816, 878, 884, 887
- of the pneumogastric nerve, see "Ganglion of the trunk"
- superior (ganglion cervicale superius), 816, 878, 884, 887, 888, 889
- cervicale vagi, see "Ganglion of the trunk"
- ciliary (ganglion ciliare), 888, 889, 861, 886
- long or sensory root (radix longa), 861, 886
- middle or sympathetic root (radix sympathica), 886
- Ganglion or ganglia:
 ciliary, short or motor root (radix brevis), 861, 868, 886
- coccygeal (ganglion coccygeum impar), 836, 885
- celiacæ, 888, 889
- collateral (of Gaskell), see "Ganglia of the plexuses of the sympathetic"
- diaphragmatic, 888, 889
- Ehrenritter's, see "Ganglion, jugular" of the fifth nerve, see "Ganglion, Gasserian" Gasserian, 760, 858-864, 868
- geniculate, of the facial nerve (ganglion geniculi), 863, 868, 869, 874, 937
- of the great sympathetic cord, 810, 812, 884, 885
- of the habenula, 791, 794, 795
- impar, 836, 885
- jugular (of the glossopharyngeal nerve), 873, 876, and App., note 467
- (of the vagus nerve), see "Ganglion of the pneumogastric nerve, upper"
- jugularis (nervi vagi), 769, 858, 868, 872, 873, 876
- lateral, 810, 812, 884, 885
- lenticular, see "Ganglion, ciliary"
- lower, of the pneumogastric nerve, 872-874, 876, 878
- lumbar (ganglia lumbalia), 885, 889, 890
- Meckel's, see "Ganglion, sphenopalatine" mesenteric, superior (ganglion mesentericum superior), 888, 889
- nasal, see "Ganglion, sphenopalatine" nervi optic, 899, note
- nodosum, 872-874, 876, 878
- ophthalmic, see "Ganglion ciliary"
- otic (ganglion oticum), 858, 859, 867
- sympathetic root (radix sympathica), 867
- petrosal (ganglion petrosum), 859, 858, 868, 876
- phrenic (ganglion phrenicus), 888, 889
- of theplexuses of the sympathetic (ganglia plexorum sympathicorum), 888
- of the pneumogastric nerve, lower (ganglion of the trunk), 872-874, 876, 878
- upper (ganglion of the root), 769, 858, 868, 872, 873, 876, and App., note 447
- of the posterior root, see "Ganglion, spinal" prevertebral (of Gaskell), see "Ganglia of the plexuses of the sympathetic"
- retinae, 899, note
- sacral (ganglia sacralia), 885, 890
- semilunar (ganglion semilunare Gasser), 888, 889
- sphenopalatine (ganglion sphenopalatinum), 858, 859, 861-863, 947
- spinal (ganglion spinale), 753, 757-759, 810-812
- spiral, of the cochlea (ganglion spirale cochleæ), 769, 939
- splanchnic (ganglion splanchnicum), 884
- submaxillary (ganglion submaxillare), 859, 864, 867
- sympathetic root (radix sympathica), 864
- superius nervi glossopharyngei, 873, 876
- sympathetic (ganglia trunci sympathici), 810, 812, 884, 885
- thoracic (ganglion thoracalia), 816, 884, 887
- truncus sympathicus, 810, 813, 884, 885
- of the trunk of the pneumogastric nerve, 872-874, 876, 878
- vertebral, 810, 812, 884, 885
- vestibular (ganglion vestibulare), 769, 858, 936, 939
- of Wrisberg, 887 and App., note 471
- Ganglion cells, see "Nerve cells"
- Gasser, ganglion of, 769, 858-864, 868
- Geniculate body, see "Body, geniculate"
- Geniculum nervi facialis, 869, 919
- Genu (see also "Knee"):
 capsulae interne, 794
- corporis callosi, 777, 780-783, 794, 795, 808

- Genu of the corpus callosum, 777, 780-783, 794, 795, 808
 of the facial nerve, inner, 769, 787
 outer, 869, 919
 (internum) nervi facialis, 769, 787
- Gland or glands:
 ceruminous, 920
 lachrymal, 860, 862, 902, 903, 907, 945, and App., note 505
 inferior, 906, 910, 911, and App., note 505
 superior, 906, 910, 911, and App., note 505
- Meibomian, 910, 913
 of Moll, 910
- Pacchionian, see "Bodies, Pacchionian"
- sebaceous, 910, 952, 953
 sudoriferous, 910, 950, 951, 953
 tarsal, 910, 913
 posterior, 910
- Glandula vel glandulae:
 ceruminosa, 920
 ciliares [Mollii], 910
 lacrimalis, 860, 862, 902, 903, 907, 945
 inferior, 906, 910, 911
 superior, 906, 910, 911
 mucosæ [Krausei], 910
 sebacea, 910, 952, 953
 sudorifera, 910, 950, 951, 953
 tarsalis [Meibomi], 910, 913
- Globe of the eye, 892, 902, 904, 905, 909, 910
 development of, 915, 916
- Globus pallidus, 766, 790, 792-797
- Glomeruli arteriosi cochlearia, 939, 940
 *Glomerulus, arterial, of the cochlea, 939, 940, and App., note 550
- * choroidal, 781 and note, 784, 791, 794
- Glomus chorioideum, 781, 784, 791, 794
- Golgi's cell, 756 and App., note 350
- Golf, tract of, 756 and App., note 348
- Gowers, tract of, 756 and App., note 346
- Granulations arachnoideales [Pacchioni], 779, 802
- Granulations, Pacchionian, see "Bodies, Pacchionian"
- Gratiolet, optic radiation of, 791, 794, 798
- *Grey portion of the hypothalamus, 792 and App., note 403
- Groove (see also "Fissure," "Furrow," and "Sulcus"):
 * ampillary, 938 and App., note 643
 anterolateral, 753, 755, 812
 of the basilar artery, median, 765, 787
 for the cartilaginous portion of the Eustachian tube, 929
 intermediate, anterior, 753
 posterior, 753, 755, 768
 lachrymal, 912, 913
 lateral (of the mid-brain), 766, 788, 789
 limiting of the floor of the fourth ventricle (sulcus limitans fossæ rhomboideæ), 768, 787
 marginal, of the nail-bed, 956
 median, of the fourth ventricle, 768, 787
 posterior, 752, 753, 755
- oculomotor, 764, 765
- olfactory, 914
- postero-lateral, 753, 755, 768
 of the promontory, 927, 930, and App., note 525
- spiral, 939
- Grooves of the matrix of the nail, 956
- Ground fibres of Flechsig, anterior, 756, 757, and App., note 347
 lateral, 756, 757, and App., note 347
- Gudden, commissure of, 793
- Gyrus or gyri:
 angular (gyrus angularis), 777
 breves insulae, 779, 780
 callosal, see "Gyrus cinguli"
 central, anterior (gyrus centralis anterior), 777, 778, 800
 posterior (gyrus centralis posterior), 777, 778, 800
 of the central lobe, 779, 780, 793
 cerebelli, 770
 cerebri, 775, 777, 778
 cinguli, 777, 783, 785, 793, 795, 800, and App., note 390
- Gyrus or gyri:
 concealed, 779 and note
 deep, 779 and note
 dentate, 763, 782, 783, 785, 791, 795
 forniciatus, 777, 783, 785, 793, 795, 800, and App., note 390
 frontal, ascending, 777, 778, 800
 first or superior, 777, 778, 790, and App., note 388
 second or middle, 777, 778
 third or inferior, 777, 779, 800
 frontalis inferior, 777, 779, 800
 medius, 777, 778
 superior, 777, 778, 790
 fusiformis, 775
 hippocampal, 765, 775 and note, 783, 785, and App., note 390
 hippocampi, 765, 775, 783, 785
 insulae, 779, 793
 of the island of Reil, 779, 780, 793
 lingualis, 775, 777, 783
 long, of the central lobe, 779, 780
 longus insulae, 779, 780
 occipital, lateral, 777 and App., note 386
 superior, 777, 778, and App., note 386
 occipitales laterales, 777
 superiores, 777, 778
 orbital (gyri orbitales), 775, 777
 inner, see "Gyrus rectus"
 parietal, ascending, 777, 778, 800
 postcentral, 777, 778, 800
 postparietal, 777, note
 precentral, 777, 778, 800
 profundus, 779
 rectus, 765, 775, 793, and App., note 367
 short, of the central lobe, 779, 780
 straight, 765, 775, 793, and App., note 367
 subcalcarine, see "Gyrus, temporal, fifth"
 subcallosal (gyrus subcallosus), 764, 777, 793
 sunken, 779 and note
 supramarginal (gyrus supramarginalis), 777
 temporal, fifth, 775 and note, 777, 783
 first or superior, 777, 779
 fourth, 775 and note
 second, 777
 third, 775, 777
 transverse (gyri temporales transversi), 779, 780
 temporalis inferior, 775, 777
 medius, 777
 superior, 777, 779
 uncinate, 775, note
- H.
- Habenula, 782, 794, and App., note 365
- Hair, 952
- Hair or hairs:
 of the external auditory meatus (*trag), 920 and note
 of the head, 953
 of the moustache, 952
 pubic, 951
 shaft or stem of, 952, 953
 small and rudimentary, of the general surface of the body, 910, 951, 953, and App., note 503
- Hair-bull, 952, 953, and App., note 360
- Hair-follicle, 951-953
- Hair-knob, 952, 953, and App., note 560
- Hair-stream, 955 and App., note 564
- Hair-whorl, 955 and App., note 564
- Hammer-bone, 869, 918, 923, 926, 928
- Hamulus of the osseous spiral lamina (hamulus laminæ spiralis), 934, 936, 939
- Handle of the malleus or hammer-bone, 867, 922-925, 928
- Haser's valve, 913
- Head of the caudate nucleus, 766, 790, 793-795
 * Head of the corpus striatum, 780-782, 784
 of the malleus or hammer-bone, 922, 924-926

- Head of the posterior grey column, 754 and note, 755, 786
and note, also App., note 339
horn, 786 and note
of the stapes, 925
Hearing, organ of, 917-940
Heliocotremia, 934, 936, 937, 939
Helix, 920, 921, 923
Spine of the, 920, 921
Hemisphaerium cerebelli, 762, 764, 770-774
cerebri, 762, 763, 777, 778
Hemisphere, cerebellar, 762, 764, 770-774
cerebral, 762, 763, 777, 778
Henle's layer, 952
sheath, App., note 326
Hensen, canalis reunions of, 936
Hiatus semilunaris, 944, 945, 947
subarcuatus, 938 and note
Highmore, antrum of, 918, 944-947
Hilum of the dentate nucleus, 772
of the olfactory nucleus, 786
Hilus nuclei dentati, 772
olivarum, 786
Hippocampus, 763, 781, 782, 785, 791, 794, 795
major, 763, 781, 782, 785, 791, 794, 795
minor, 781, 782, 791, 794
Hook of the hippocampal gyrus, 763, 765, 775, 782
Horn of the lateral ventricle of the brain, anterior, 781, 782,
784, 790, 792-
794
middle, lateral, or
descending, 781, 782, 784,
785, 790-792,
794, 795
posterior, 781, 782,
784, 791, 794
Horns of the grey matter of the spinal cord, see "Columbus
of the spinal cord, grey," and App., note 339
Huxley's layer, 952
Hyaloid membrane, 900
Hypophysis, 760, 761, 764, 774, 776, 802, 808
cerebri, 760, 761, 764, 774, 776, 802, 808
*Hypothalamus, 764, 785, and App., note 380
- I.**
- *Impression, petrous (impressio petrosa cerebri), 783
Incisura vel fucisura:
* anterior (auriculae), 920
cartilagineus meatus auditorii externi [Santorini],
921, 922
cerebelli anterior, 770
posterior, 770-772
* intertragica, 920
marsupialis, 770, note
Santorini, 921, 922
semilunaris, 770, note
tentori, 805, 860
terminalis, 921, 922
auris, 921, 922
tympanica [Kivini], 923, 924
Incus, 869, 925, 926, 932
Infundibulum, 761, 763-765, 774, 776, 792, 808
(of the brain), 761, 763-765, 774, 776, 792, 808,
and App., note 461
ethmoidale, 944, 945
(of the nasal fossæ), 944, 945
Insula, 779, 790, 792-795
Integumentum commune, 949
Interbrain, 760-762
Internal capsule, 766, 790-797, 900
ear, 918, 930-940
Interolivary layer of the fillet, 786
Intumescentia cervicalis, 752, 755
ganglioformis Scarpæ, see "Ganglion, vesti-
bular"
lumbalis, 752
Iris, 892-898, 903, 916
Iris, ciliary and pupillary zones of, 896 and App., note 487
Island of Reil, 779, 790, 792-795
Isthmus cartilagineus auris, 920, 921
of the ear cartilage, 920, 921
encephali, see "Mid-brain" and App., note 369
of the Eustachian tube, 928
of the gyrus forniciatus (isthmus gyri forniciati),
775, 783
of His, 760, 761, 762, and App., note 369
rhombencephali, 760-762, 788
tubæ auditivæ, 628
Iter a tertio ad quartum ventriculum, 761, 763, 764, 776, 789,
791
- J.
- Jacobson, cartilage of, 943 and App., note 553
* eminence of, 943 and App., note 554
Joui, incudostapedial, 925
malleo-incudal, 925
- K.**
- Knee, see "Genu"
of the internal capsule, 794 and App., note 404
- L.**
- Labium sulcatum, 939, note
tympanicum, 939
vestibulare, 939
Labyrinth, bony, 918, 919, 930-935
of the ethmoid bone, 904, 945
membranous, 936
osseus, 918, 919, 930-935
Labyrinthus ethmoidalis, 904, 945
membranaceus, 936
osseus, 918, 919, 930-935
Lachrymal apparatus, 911-913
canaliculus, gland, etc., see "Canaliculus, lach-
rymal," "Gland, lachrymal," etc.
fissure, 914
reservoir, 908, 910, 912, 913
Lacrimal, see "Lachrymal"
Lacus lacrimalis, 908, 910, 912, 913
Lagena, 936 and App., note 545
Lamellæ of Pacini corpuscle, 749
Lamina or laminae:
affixa, 784, 785
basalis (chorioideæ), 895
basilaris, 939
of the cerebellum, 770
choriocapillaris, 895 and App., note 486
chorioidea epithelialis, 763, 767, 785
cinerea, 764, 776, and App., note 387
cornea, 784, 785, and App., note 392
cribriforma of the sclerotic coat (lamina cribrosa
scleræ), 899
elastic, anterior (lamina elastica anterior Bowmani),
748, 893
posterior (lamina elastica posterior Desce-
meti), 893
fusca (scleræ), 892, 894, 895
homogeneous, anterior, 748, 893
medullary, of the cerebellum (lamina medullares
cerebelli), 764, 772
internal, of the optic thalamus (lamina
medullares thalami), 785, 794
of the lentular nucleus (lamina medul-
laris nuclei lentiformis), 793
modioli, 934 and App., note 537
perforated, see "Space, perforated"
quadrigeminal (lamina quadrigemina), 764, 775, 776,
802, 808
rostral (lamina rostralis), 776 and App., note 387
of the septum lucidum (lamina septi pellucidi),
781, 784

- Lamina or laminæ:
 spiral, membranous (lamina spiralis membranacea), 932, 936, 937
 osseous (lamina spiralis ossea), 930, 932-937, 939
 secondary (lamina spiralis secundaria), 932, 934, 935
 suprachoroidica, 893-895 and App., note 486
 terminalis, 764, 776
 tragi, 921, 922
 vasculosa (chorioidea), 895 and App., note 486
 vitrea, 895 and App., note 486
- Lancisi, nerves of, 780, 793
- Lanugo, 910, 951, 953, and App., note 503
- Lateral mass of the ethmoid bone, 904, 945
- Layer or layers:
 choriocapillary, 895 and App., note 486
 epithelial, of the velum interpositum and choroid plexuses, 763, 767, 785, and App., note 374
 of the fillet, App., note 400
- Henle's, 952
- horny, 950, 956
- Huxley's, 952
- hyaline, of the hair-follicle, 952 and App., note 562
- interfoliary, of the fillet, 786
- Malpighian, 950, 956
- of the membrana tympani, cutaneous, 925
 mucous, 925
- nuclear (of the medulla oblongata), 767, 772, and App., note 375
- optic, App., note 400
- papillary (of the corium), 950, 956
- reticular, of the corium, 950
- of the retina, 899
 molecular layer, inner, 899
 outer, 899
 nerve-cell layer, 899
 nerve-fibre layer, 899
 nuclear layer, inner, 899
 outer, 899
 pigment-cell layer, 899
 rods and cones, 899
 (For other names, see App., note 490, and footnotes to p. 899)
- * vascular, of the choroid, 895 and App., note 486
 white, deep, 789
 superficial (of the corpora quadrigemina), 788, 789, and App., note 400
- Lemniscus lateralis (acusticus), 772, 788, 791, 796
 medialis (sensitivus), 786-789, 796, 797
- Lens capsule, see "Capsule of the lens"
 crystalline (lens crystallina), 892, 893, 895, 898, 900, 901
 anterior surface (facies anterior), 900, 901
 posterior surface (facies posterior), 900, 901
- fibres, 900
 vesicle, 914, 915
- Levator cushion, 928, 944, and App., note 527
- Ligament, annular, of the base of the stapes, 926
 of the auricle, spiral, 936, 939
 of the incus (posterior), 926 and App., note 521
 of the malleus, anterior, 922
 external, 925
 superior or suspensory, 923-926
- palpebral, external, 909, 911
 internal, 909, 912, 913
- of the pinna, anterior, 921
 posterior, 922
 superior, 921
- of the spinal cord, central, 752-754, 758
- spiral, of the cochlea, 936, 939
- suspensory, of the lens, 892, 893, 991, and App., n. 480
- tarsal, external, 909, 911
 internal, 909, 912, 913
- taeniam, anterior, 924
 posterior, 924
- Ligamentum annulare baseos stapedis, 926
 auriculare anterius, 921
 posterius, 922
 superius, 921
- Ligamentum denticulatum, 755, 759, 873
 includis posterius, 926
 mallei anterius, 922
 laterale, 925
 superius, 923-926
- + palpebrale laterale, 909, 911
 mediale, 909, 912, 913
 pectinatum iridis, 893
 spirale cochlearis, 936, 939
- Ligula, 767, 768, 773, and App., note 392
- Limb of the internal capsule, anterior, 794 and App., note 404
 posterior, 794 and App., note 404
- Limbus cornæ, 892, 893, 908
 of the eyelid, anterior, 908, 910
 posterior, 908, 910
 membrane typani, 924
 palpebralis (anterior, posterior), 908, 910
- Limen insulæ, 775, 779
- nasi, 944
- vestibuli, 944
- Limiting membrane, see "Membrana limitans"
- Line of Baillarger, outer, 785
 vertico-auriculo-mental, 811, 858
 of Vieus d'Azry, 785
 of vision, 892
- Linea visus, 892
- Lines of cleavage, 954 and App., note 564
- Linguetta laminosa, see "Lingula of the cerebellum"
- Lingula of the cerebellum (lingula cerebelli), 771-773
- Lip, tympanic, 939
 vestibular, 939
- Lobe or lobes:
 anterior (of the cerebellum), App., note 381
 biventral, 770, 771
 central (of the cerebellum), 770-772
 (of the cerebrum, 779, 790, 792-795
 of the cerebellum, 770, 771, and App., notes 380
 to 382
 of the cerebrum, 776, 777
 of the (external) ear, 920, 922
 frontal, 763, 776, 780
 limbic, App., note 380
 occipital, 763, 776, 798, and App., note 386
 olfactory, 751-763
 optic, see "Corpora quadrigemina," also note 5 to p. 760
 parietal, 763, 776, 796, 797
 of the pituitary body, anterior, 760, 764, 808
 posterior, 764, 808
 posterior, 770, note, 771, note
 posterosuperior, 770, 771
 quadratæ, App., note 381
 quadrilateral, 770 and App., note 381
 slender, App., note 380
 subpeduncular, see "Flocculus"
 temporal, 763, 776, 796
- Lobule or lobules:
 central, 770-772
 of the cerebellum, 770, 771, and App., notes 380
 to 382
 cuneate, 777, 783, 795, 798
 cuneiform, 770, note, 771, note
 digastric, 770 note, 771, note
 (of the external) ear, 920, 922
 fusiform, 775, note
 lingual, see "Gyrus, temporal, fifth"
 lunated, App., note 381
 marginal, 770, note, 771, note
 oval, 777, 800, and App., note 388
 paracentral, 777, 800, and App., note 388
 parietal, inferior, 777 and note, 778
 superior, 777, 778
 postcentral, of the insula, 779, 780
 precentral, of the insula, 779, 780
 quadratæ, of the cerebrum, 777
 quadrilateral, 770 and App., note 381
 semilunar, inferior, 770, 771
 superior, 770

- Lobulus auriculæ, 920, 922
 biventer, 770, 771
 centralis, 770-772
 paracentralis, 777, 800
 parietalis (inferior, superior), 777, 778
 quadrangularis, 770
 semilunaris inferior, 770, 771
 superior, 770
- Lobus frontalis, 763, 776, 780
 gracilis, App., note 380
 (hypophyseos), anterior, 760, 764, 808
 posterior, 764, 808
- Iunatus, App., note 381
 occipitalis, 763, 776, 798
 olfactorius, 761-762
 parietalis, 763, 776, 796, 797
 temporalis, 763, 776, 796
- Locus cartilae, 768
 niger, see "Substantia nigra"
 perforatus posticus, see "Space, perforated, posterior"
- Longitudinal bundle or fasciculus, see "Bundle, longitudinal"
- Lunula of the finger-nail (lunula unguis), 956
- Lyms nucleus of, 785, 791, 792, 797, and App., note 402
- Lymphoid follicles of the conjunctiva, 910
- Lyra, 784, 795
- M.**
- Macula acustica of the saccule (macula acustica sacculi), 936, 939
 of the utricle (macula acustica utriculi), 936, 938
- cribriformis inferior, 930, 931, 933, 935, and App., note 533
 middle, 930, 931, 933, and App., note 532
 superior, 930, 931, 933, 935, and App., n. 531
- Majendie, foramen of, 767, 802
- Malleus, 869, 918, 925, 926, 928
- Malpighian layer, 950, 956
- Mantle, 766 and note, 761
- Manubrium mallei, 867, 922-925, 928
- Margin of the iris, ciliary, 894, 896
 pupillary, 866, 897, 916
 of the membrana tympani, 924
 of nail, 956
- Margo ciliaris iridis, 894, 896
 pupillaris iridis, 866, 897, 916
 unguis (lateralis, liber, occultus), 956
- Marrow, spinal, see "Cord, spinal"
- Mass, lateral, of the ethmoid bone, 904, 945
- Massa, intermedia, 764, 776, 782, 792, 794
- Mastoid antrum, 919, 926, 927, 932
- Matrix of nail, 956
 unguis, 956
- Matter, grey, central, of the aqueduct, 788, 789, 791
 white, of the cerebellum, 772, 773, 776
 of the cerebrum, see "Centrum ovale"
- Maxillary sinus, 918, 944-947
- Meatus acusticus externus, 921, 931
 internal, 926, 932-935, 937, 939
 + auditorius externus, 918-920, 922, 928
 + pars cartilaginea, 922, 923, 928
 + ossea, 922, 923
- † auditory, external, 918-922, 928, 931
 + cartilaginous portion, 922, 923, 928
 + osseous portion, 922, 923
 internal, 926, 932-935, 937, 939
- nasi communis, 905, 945, 947
 inferior, 903, 913, 944, 945
 medius, 913, 944, 945, 947
 superior, 944, 945
 supremus (var.), 945
- of the nose, common, 905, 945, 947
 fourth, 945 and App., note 557
 inferior, 903, 913, 944, 945
 middle, 913, 944, 945, 947
 superior, 944, 945
- supremus, 945 and App., note 557
- † Meditullium, 780, 790
- Medulla oblongata, 761-769, 786, 787, 808, 873
 spinalis, 752-755, 788
- Medullary centre of the cerebellum, 772, 773, 776
 of the cerebrum, see "Centrum ovale"
- sheath, 746 and App., note 319
- Meibomian glands, 910, 913
- Membrana basilaris, 939
 flaccida, 922, 924, 925
 hyaloidea, 900
 limitans (externa, interna), 899
 mucosa nasi, 947, 948
 obturatoria (stapedis), 925, 926
 propria (of the membrana tympani) 925 and
 App., note 517
 papillaris, 916
 tympani, 918, 919, 922, 924-928, 932
 secundaria, 926, 937
- vestibularis (Reissneri), 939
- Membrane or membranes:
- basilar, 939
 - of Bowman, 748, 893
 - of the brain, 802-808
 - of Bruch, 895 and App., note 486
 - of Demours, 893
 - of Descemet, 893
 - of the fenestra ovalis, see "Ligament, annular,
of the base of the stapes"
 - rotunda see "Membrane, tympanic, secondary"
 - hyaloid, 900
 - limiting, see "Membrana limitans"
 - mucocones of the nose, 947, 948
 - obturator of the stapes, 925, 926, and App.,
note 519
 - pituitary, 947, 948
 - pupillary, 916
 - of Reissner, 939
 - Schneiderian, 947, 948
 - secondary, of the tympanum, App., note 523
 - Sharpnack's, see "Membrane flaccida"
 - of the spinal cord, 758, 759
 - suprachoroidal, 893-895 and App., note 486
 - tarsal, see "Fascia, palpebral,"
 - tympanic, 918, 919, 922, 924-928, 932
 - secondary, 926, 927, and App., note 523
- Meninges of the brain (meninges encephali), 802-808
 of the spinal cord (meninges spinales), 758, 759
- Meridian of the eyeball, horizontal, 892
 sagittal, 892
 vertical, 892
- Meridiani, 892
- Mesencephalon, 760-762, 764, 778, 788, 799
- *Metathalamus, 760, 761, and App., note 354
- Metencephalon, 760-762
- Meynert's bundle, 791
- Mid-brain, 760-762, 764, 778, 788, 789
- Middle ear, 918, 925-931
- Modiolus, 934, 936, 937, 939, and App., note 537
- Moll's glands, 910
- Monro, foramen of, 763, 774, 776, 781, 783, 793
- Monticulus (cerebelli), 770, 772
- Motorial end-organ, 749 and note, 750
- Moustache hair, 952
- Mucous membrane, see "Membrane, mucous"
- Muscle or muscles:
- of the antitragus, 921
 - arrector pili, 951-953
 - attollens auricularis, 921
 - attraheens auricularis (deep layer), 921 and App.,
note 510
 - of the auricles, 921
 - auricularis anterior (deep layer), 921 and App.,
note 510
 - posterior, 921
 - superior, 921
 - ciliary, 892-897, 901
 - circular fibres (circular ciliary muscle), 893
 - radial or meridional fibres (radial ciliary
muscle), 893
 - erector pili, 951-953

- Muscle or muscles:
 of the helix, large, 921
 small, 921
 levator palpebrae superioris, 868, 902, 903, 906, 907,
 910
 oblique, of the auricle, 921
 inferior (of the eyeball), 868, 902, 903, 905-
 907, 909
 superior (of the eyeball), 868, 902-904, 906
 907
 orbicularis palpebrarum, 868, 903, 906, 910, 911, 913
 of the orbit, 902-907
 orbitalis, see "Muscle, sphenomaxillary," and App.,
 note 458
 palpebral, superior, 910 and App., note 504
 rectus (of the eyeball), external, 868, 892, 902-907, 911
 inferior, 868, 892, 902, 903, 905-
 907
 internal, 868, 892, 902-907
 superior, 868, 892, 902-904,
 906, 907
- retrahens auriculam, 921
 of Riolan, 909, 910, and App., note 501
 salpingopharyngeus, 928
 sphincter of the pupil, 893, 896
 stapedius, 923, 925-927
 subtarsalis, 909, 910, and App., note 501
 tensor chorioideæ, see "Muscle, ciliary"
 tympani, 867, 924-926, 928
 of the tragus, 921
 transverse, of the auricle, 921
- Musculus vel musculi:**
 antitragicus, 921
 arrectores pilorum, 951-953
 auricularis anterior (proundus), 921
 posterior, 921
 superior, 921
 ciliaris, 892-897, 901
 fibrae circulares [Muelleri], 893
 meridionales [Brueckei], 893
 ciliaris Riolani, 909, 910
 helicis (major, minor), 921
 levator palpebrae superioris, 868, 902, 903, 906,
 907, 910
 obliquus auriculae, 921
 (oculi) inferior, 868, 902, 903, 905-907,
 909
 superior, 868, 902-904, 906, 907
 oculi, 902-907
 orbicularis oculi, 903, 910
 pars lacrimalis, 910, 913
 orbitalis, 868
 parapebraialis, 913
 orbitalis, 868, 906
 rectus (oculi) inferior, 868, 892, 902, 903, 905-907
 lateralis, 868, 892, 902-907, 911
 medialis, 868, 892, 902-907
 superior, 868, 892, 902-904, 906, 907
 salpingopharyngeus, 92
 sphincter pupillæ, 893, 896
 stapedius, 923, 925-927
 subtarsalis, 909, 910
 tarsalis (superior), 910
 tensor chorioideæ, see "Muscle, ciliary"
 tympani, 867, 924-926, 928
 tragiæ, 921
 transversus auriculae, 921
- Myelencephalon**, 760-762
- N.**
- Nail, 956
 Nail-bed, 956
 Nail-fold, 956
 Nail-wall, 956
 Nares, 942, 946, 948
 anterior, 942, 946, 948
 Nasal fossæ, 941-948
 Nasopharyngeal part of the lateral wall of the nasal fossæ,
 944, 946
- Nasopharynx, 914
 Nasoturbinal, see "Agger nasi"
 Nasus externus, 942
 Nates, see "Quadrigeminal body, superior," and App.,
 note 372
 Neck of hair-follicle, 952
 of the malleus or hammer-hone, 823-825
 of the posterior grey column, 754 and note, 755 and
 note, 786 and note, and App.,
 note 339
 horn, see "Cervix cornu posteri-
 oris"
 of the stapes, App., note 518
- Nerve or nerves:**
 of the abdominal viscera, 888, 889
 abducens oculi, 765, 774, 799, 803, 861, 868, 869, 886,
 903
 nucleus of, 769, 787, 799
 root of, 769, 774, 787, 860
 accessory, spinal, see "Nerve, spinal accessory"
 alveolar, inferior, see "Nerve, dental, inferior"
 superior, 859, 861, 862, 864
 ampullary, external, 935, 937
 posterior, 935-937
 superior, 935, 937, 938
 anococcygeal, 836, 852, 853, 856
 of Arnold, 868, 876
 auditory, 765, 773, 803, 807, 869, 918, 919, 936, 937, 939
 central tract of, 796 and note
 nucleus of, 787
 roots of, 765, 774, 787
 of the auricle, 818, 819, 864, 868, 870, 871
 auricular, anterior, 870, 871
 (branch of the pneumogastric nerve), 868,
 876
 great, 816, 818, 819, 870, 871
 posterior, 869, 871
 auriculotemporal, 859, 864, 867, 869-871, 921, and App.,
 note 459
 terminal branch, App., note 459
 axillary, 816, 821, 823
 buccal, 864-866, 871, 877
 (branches of the facial nerve), 871
 buccalobial (branches of the facial nerve), 871
 calcaneal, external, 844, 845, 849, 851
 internal, 843, 851
 cardiac (branch of the superior laryngeal nerve), 874,
 877, 888
 cervical, inferior (branch of the pneumoga-
 stric nerve), 817, 872, 876, 878,
 887
 superior (branch of the pneumoga-
 stric nerve), App., note 422
 inferior, 884, 887
 lowest, 884, 887, and App., note 472
 middle, 876, 884, 887
 superior or superficial, 874, 876, 884, 887
 thoracic (branch of the pneumogastric nerve),
 820, 878, 887
 carotid (*i.e.*, ascending or carotid branch of the
 superior cervical ganglion), 816, 859, 874,
 876, 884, 886
 external, 859, 884
 caroticotympanic, inferior, 868, 874, and App., note 468
 superior, see "Nerve, petrosal,
 deep, small"
 cavernous, of the penis, large, 890
 small, 890
 cervical, 803, 813, 816, 817, 876, 877
 anterior primary divisions, 816, 817
 posterior cutaneous offsets, 813
 primary divisions, 811, 813
 cervical (branches of the facial nerve), 818, 819, 871
 communicating, 816 and note
 descending, 817, 858, 877
 superficial, 816, 818, 819, 870, 871
 chorda tympani, 859, 863, 864, 867-869, 923
 ciliary, 861, 886, 894-896
 long, 861
 short, 861

- Nerve or nerves:
- circumflex, 816, 821, 823
 - cutaneous branch, 824, 831
 - lower branch, 824, note, 831, note
 - coccygeal, 836, 856, 858, 885
 - coclear, 936, 937, 939
 - nucleus and root, 769
 - * celiac (branch of the pneumogastric nerve), 872
 - common oculomotor, see "Nerve, oculomotor, common"
 - communicans tibialis, 840, 842, 849
 - of cornea, 748 and App., note 323
 - cranial, 857-882
 - first, see "Nerve, olfactory"
 - second, see "Nerve, optic"
 - third, see "Nerve, oculomotor, common"
 - fourth, see "Nerve, trochlear"
 - fifth, see "Nerve, trigeminal"
 - sixth, see "Nerve, abducent ocular"
 - seventh (of Soemmerring), see "Nerve, facial" (of Willis), 840; *porio dura*, see "Nerve, facial"
 - portio mollis, see "Nerve, auditory"
 - eighth (of Soemmerring), see "Nerve, auditory" (of Willis), first trunk, see "Nerve, glossopharyngeal"
 - second trunk, see "Nerve, pneumogastric"
 - third trunk, see "Nerve, spinal accessory"
 - ninth (of Soemmerring), see "Nerve, glossopharyngeal" (of Willis), see "Nerve, hypoglossal"
 - tenth, see "Nerve, pneumogastric"
 - eleventh, see "Nerve, spinal accessory"
 - twelfth, see "Nerve, hypoglossal"
 - crural, anterior, 836-839, 858
 - (branch of the genitocrural nerve), 837, 838, 848, 851
 - cutaneous, of the abdomen, anterior, 811, 814, 815
 - lateral, 814, 815
 - brachial, anterior (branches of the internal cutaneous nerve), 830 and App., note 436
 - external, of the arm, see "Nerve, musculocutaneous"
 - lower (branch of the musculo-spiral nerve), 824-826, 831, 835, and App., note 429
 - (of the thigh), 836-838, 848, 849, 858
 - upper (branch of the musculo-spiral nerve), 824, 825, 831, and App., note 429
 - of the forearm and hand, see "Ulnar nerve, palmar cutaneous branch"
 - of the gluteal region, 849
 - of the hand, dorsal, see "Ulnar nerve, dorsal cutaneous branch"
 - internal (of brachial plexus), 816, 821, 822, 830, 831, 833
 - anterior brachial cutaneous branches, 830 and App., note 436
 - anterior division, 822, 830, 833
 - posterior division, 822, 830, 831
 - internal, small (of the arm), 822, 830, 831
 - (of the thigh), 837, note, 838, 848, 851
 - of the leg, external, 840, 842, 848, 849, 851, and note 4 to p. 840
 - lateral, 840, note
 - of the lower extremity, 844-851
 - middle (of the thigh), 837 and note, 838, 848, 851
 - of the neck (var.), 818, 819
 - palmar (branch of the median nerve), 826-828, 830, 833
- Nerve or nerves:
- cutaneous, of the surface of the nose, 865, 866, 871
 - of the thorax, anterior, 810, 811, 814, 815
 - lateral, 810, 811, 813-815
 - of the trunk, 813-815
 - posterior, 810 and note, 813
 - of the upper extremity, 830-835
 - dental, inferior, 859, 863-865, 867
 - superior, 859, 861, 862, 864
 - digastric, 869, 871
 - digital, dorsal, of the foot, 844, 845, 848
 - of the hand, 831, 833, 834, 835
 - palmar, collateral, 832-835 and App., note 434
 - common, 833, 834, 834, and App., note 434
 - branches to the palm of the hand, 833
 - plantar, collateral, 846, 847, 850, and note top 846
 - common, 846, 847, 850, and note top 846
 - dorsal, 810-814, 858
 - anterior primary division, 810
 - lateral cutaneous branch, 810, 811, 814, 815
 - posterior cutaneous branch, 810, 813, 824
 - primary division, 810
 - dorsal, of the clitoris, 853
 - cutaneous, of the hand, see "Ulnar nerve, dorsal cutaneous branch"
 - of the penis, 837, 852, 854-856, 890
 - of the dorsum of the foot, 844, 845
 - of the dura mater, 860
 - of the external auditory meatus, 864, 869
 - facial, 765, 773, 803, 818, 819, 859, 861, 863, 864, 866-874, 936, 937
 - crossed central tract of the, 800
 - nucleus of the, 769, 787, 800
 - root of the, 769, 774, 787, 800
 - femoral, see "Nerve, crural, anterior"
 - fibular communicating, 842, 849
 - of the fingers, 833, 834
 - of the forearm, 825-831
 - frontal, 860, 861, 871, 905
 - genital (branch of the genitocrural nerve), 814, 837, 838, 848, 851
 - genitocrural, 836-838, 848, 856, 858
 - crural branch, 837, 838, 848, 851
 - genital branch, 814, 837, 838, 848, 851
 - gingival, 862, 865
 - glossopharyngeal, 774, 803, 817, 859, 868, 869, 872-878, 890, 891
 - nuclei of, 769, 787
 - root of, 769, 773, 774, 787, 876
 - gluteal cutaneous (branches of small sciatic nerve), 840, 841, 849, 851
 - inferior, 840, 841
 - superior, 836, 840, 841
 - gustatory, see "Nerve, lingual"
 - haemorrhoidal, inferior, 841, 852, 853
 - middle, 836, 856, 890
 - superior, 890
 - of the hand, 829, 831-834
 - of the heart, 887
 - hepatic, 872, 879
 - hypoglossal, 774, 803, 807, 817, 876-878, 880, 882
 - crossed central tract of the, 800
 - nucleus of the, 769, 786, 800
 - root of the, 769, 774, 786, 800
 - iliohypogastric, 814, 815, 836, 837, 858
 - hypogastric or abdominal branch, 814
 - iliac branch, 815, 848, 851
 - ilio-inguinal, 814, 836, 837, 848, 851, 858
 - inframamillary (branches of the facial nerve), 818, 819, 871
 - infra-orbital, 859, 861, 862, 864-866
 - intratroclear, 859, 860, 866, 870, 871
 - intercostal, 810-812, 814, 884
 - anterior cutaneous branches (thoracic and abdominal), 810, 811, 814, 815
 - lateral cutaneous branches (thoracic and abdominal), 810, 811, 813-815

INDEX

- Nerve or nerves:**
- intercostal, abdominal, 810, note
 - pectoral, 810, note
 - intercostohumeral, 815, 822, 830
 - interosseous (of the forearm), anterior, 827-829
 - posterior, 825-828 and App., note 431
 - (of the leg), 843
 - of the isthmus of the fauces, 864, 867
 - jugular, 874, 876, 878, and App., note 469
 - labial, inferior, 861
 - long, 853
 - superior, 865, 866, 871
 - lachrymal, 859, 860, 862, 911
 - of Lancisi, 780, 793
 - laryngeal, inferior or recurrent, 872, 875, 877-881, 887, and App., note 462
 - anterior branch, 875, 881
 - posterior branch, 875, 881
 - superior, 858, 872, 874, 875, 877, 878, 880, 882, 887
 - external laryngeal branch, 874, 876-878, 880, 887
 - internal laryngeal branch, 875-877, 880, 881
 - laryngopharyngeal, 876
 - of the larynx, 875, 880, 881
 - of the leg, 843-845
 - lingual, 859, 863-865, 867, 877, 880, 882
 - (branches of the glossopharyngeal nerve), 857, 881
 - (branches of the lingual nerve), 880, 882
 - motor, see "Nerve, hypoglossal"
 - lumbar, 811, 813, 826, 858, 884
 - posterior cutaneous offsets, 813
 - malar (branches of the facial nerve), 866, 870, 871
 - (branch of the temporomandibular nerve), 862, 865, 870
 - mammary, inner, 815 and note
 - outer, 815 and note
 - mandibular (branch of the facial nerve), 818, 866, 870, 871
 - masseteric, 865 and App., note 454
 - masticatory, 867
 - maxillary, inferior, 806, 807, 858-865, 868, 877
 - superior, 806, 807, 858, 860-864, 866
 - median, 816, 821-823, 826-828, 832
 - meningeal (branch of ophthalmic nerve), 860, 864
 - (branches of spinal nerves), see "Nerves, sinuvertebral"
 - middle, 860, 867, 868
 - see also "Nerve, recurrent"
 - mental, 859, 865, 866
 - middle meningeal, 860, 867, 868
 - of the muscles of the orbit, 799, 868
 - musculocutaneous of the arm, 816, 821-823, 835
 - (cutaneous portion), 821, 823, 826-828, 830, 833
 - of the leg, 844, 848, 851
 - external terminal branch, 844
 - internal terminal branch, 844
 - musculospiral, 816, 821-828, 830, 831, 833, 835
 - lower external cutaneous branch, 824-826, 831, 835, and App., note 429
 - upper external cutaneous branch, 824, 825, 831, and App., note 429
 - to the mylohyoid muscle, 863, 865, 867
 - nasal, 859-861, 863, 866, 886 and App., note 449
 - of the nasal mucous membrane, 862, 863
 - nasociliary, see "Nerve, nasal"
 - nasopalatine, 862
 - of the neck, 817-819, 874, 877, 878
 - obturator, 836, 837, 839 and note, 851, 856, 858
 - anterior portion (anterior obturator nerve), 839 and note
 - cutaneous branch, 839, 848, 849, 851
 - posterior portion (posterior obturator nerve), 839 and note
 - occipital (branch of the facial nerve), 871
 - great, 813, 818, 871
 - occipital, small, 813, 816, 818, 819, 871
 - third, 813 and note
 - ocular, abducent, see "Nerve, abducent ocular"
 - oculomotor, common, 764, 765, 774, 789, 799, 803-805, 859-862, 868, 886, 903, 905
 - lower branch, 868, 886
 - nucleus, 769, 789, 799
 - root, 769, 789, 863
 - upper branch, 860, 868, 886
 - oculonasal, see "Nerve, nasal"
 - cesophageal, 872, 877-881
 - olfactory, 862, 863
 - ophthalmic, 858, 860-862
 - optic, 765, 766, 774, 803-807, 860, 861, 892, 897-899, 904, 907
 - intracranial portion, 904
 - nucleus of, 769 and App., note 378
 - orbital portion of, 904
 - primitive, 915
 - orbital, 859, 862, 911
 - anterior or large, 863
 - external, 863
 - posterior or small, 863
 - palpebral, 859, 862
 - anterior, 861, 866, 870
 - superior, 870
 - parotid, 864
 - peteolar (branches of the internal saphenous nerve), 838, 848
 - pathetic, see "Nerve, trochlear"
 - pectoral, see "Nerves, intercostal"
 - of the pelvic viscera, 890
 - of the penis, 854, 855
 - pericardial, 820
 - perineal, 841, 852, 853, 856
 - of the perineal region, female, 853
 - male, 852
 - peroneal, 840, 842, 844, 845, 849
 - communicating, 842, 849
 - petrosal, deep, great, 863, 886, and App., note 452
 - small, 874, 886, and App., notes 462 and 468
 - superficial, great, 807, 859, 860, 863, 869, 919
 - small, 859, 860, 867
 - pharyngeal, 872, 874-878, 884
 - phrenic, 816, 817, 820, 821, 858, 877, 878
 - phrenico-abdominal, 820, 888
 - plantar, external, 843, 846, 847, 851
 - cutaneous branches, 846, 850
 - deep or muscular branch, 846, 847
 - superficial branch, 846, 847
 - internal, 843, 846, 847, 851
 - inner branch (first digital branch), 850 and note
 - pneumogastric, 774, 803, 807, 817, 820, 868, 872-884, 887
 - cephalic portion, 876
 - cervical portion, 876, 878
 - nuclei of, 769
 - roots of, 766, 774, 789, 791, 873, 876
 - thoracic portion, 878, 879
 - popliteal (=internal popliteal, or the *N. tibialis* of Continenian anatomists), 840, 842, 843, 847, 849, and note 2 to p. 840
 - internal, 840, 842, 843, 849, and note 2 to p. 840
 - external, 840, 842, 844, 845, 849
 - portio dura of the seventh cranial, see "Nerve, facial"
 - intermedia of the seventh cranial, 765, 769, 774, 869, 873
 - mollis of the seventh cranial, see "Nerve, auditory"
 - pterygoid, external, 867
 - internal, 867 and App., note 457
 - pubertal, inferior, 840, 841, 849, 852, 853
 - pulmonary, anterior, 820, 878, 887
 - (branches of the sympathetic), 884, 887
 - posterior, 872, 879
 - to the pyriformis muscle, 836
 - radial, 825-828, 830, 831, 833, 835; see also "Nerve, musculospiral"

Nerve or nerves:
 to the rhomboid muscles, 813, 816, 821, 824
 rectal, see "Nerves, haemorrhoidal"
 of the rectum, 890
 recurrent (branch of the inferior maxillary nerve),
 860, 867, 868
 (branch of the ophthalmic nerve), 860, 864
 (branches of spinal nerves), see "Nerves,
 sinuvertebral"
 (branch of the superior maxillary nerve),
 860
 respiratory, external (of Bell), see "Nerve, thoracic,
 posterior"
 saccular, 936, 937, 959
 sacculo-ampullary, 937
 sacral, 811, 813, 836, 885, 890
 anterior primary divisions, 856, 890
 posterior primary divisions, 811, 813
 cutaneous offsets of external branches of same
 (nervi clunium superiores), 813, 849, 851
 saphenous, external or short, 842, 844, 845, 849, 851
 internal or long, 838, 839, 848, 849, 851
 patellar branches, 838, 848
 sciatic, great, 836, 840-842, 858, 890
 small, 836, 840, 841, 849, 851
 femoral cutaneous branches, 849
 gluteal cutaneous branches, 840, 841, 849, 851
 scrotal, 841
 anterior, 814
 long, 852, 856
 of the scrotum, 852
 of the shoulder, 822-824
 sinuvertebral, 886, and App., note 473
 of the sole of the foot, 846, 847
 sphenopalatine, 861-863
 spinal, 759, 809-856
 anterior primary divisions, 759, 810, 812
 posterior primary divisions, 759, 810-813
 spinal accessory, 774, 868, 872, 873
 external or spinal portion, 817-819,
 868, 877
 internal, bulbular, accessory, or vagal
 portion, 868, 873
 nucleus of, 768
 roots of, 769, 774, 786, 873
 of the spinal canal, 886
 splanchnic, great, 884, 885, 888, 889
 small, 884, 885, 888
 renal branch of, 888
 smallest, App., note 175
 to the stapedius muscle, 868
 of the stomach, 879
 to the stylohyoid muscle, 869
 to the stylopharyngeus muscle, 817, 877
 subcaudal, 836, 852, 853, 856
 to the subclavius muscle, 817, 820, 821
 subcostal, 810, note, 814, note, 836, note
 sublingual, 864, 867, and App., note 453
 submaxillary (branches of the lingual nerve), 864, 867
 suboccipital, 813
 subscapular, 815 and note, 816, 821-823
 middle or long, 815 and note, 821-823
 supraclavicular, 815-819, 830, 831, 835
 supramaxillary (branch of the facial nerve), 818, 866,
 870, 871
 supra-orbital, 839-861, 865, 870, 871, 909
 suprascapular, 816, 817, 821, 824
 supratrochlear, 859, 860, 866, 870, 871, 909
 of the teeth of the lower jaw, 865
 of the upper jaw, 861, 862
 temporal (branches of the facial nerve), 870, 871
 (branch of the temporomolar nerve), 862,
 870
 deep, anterior, 865 and App., note 454
 middle, 877 and note
 posterior, 865 and App., note 454
 superficial, 870, 871, 921
 temporomolar, 859, 862, 911
 to the tensor palati muscle, 867
 tympani muscle, 867

Nerve or nerves:
 of the thigh, 838-841
 thoracic, anterior, 816, 817, 821
 posterior, 815, 816, 821
 of the thoracic viscera, 887
 to the thyrohyoid muscle, 817, 877, 878
 tibial, 840, note
 anterior, 844, 845, 848, 851
 external terminal branch, 845 and note
 internal terminal branch, 844, 845
 communicating, 840, 842, 849
 posterior, 843, 847, and App., note 442
 of the tongue, 875, 877, 880-882
 tonsillar, 881
 tracheal, 872, 875, 878, 880, 881
 trigeminal, see "Nerve, trigeminal"
 trigeminal, 765, 790, 803, 858-871
 cutaneous area, 811, 858
 nuclei, 769, 787
 roots, intracerebral, 769, 774, 786-789
 nucleus of, 769, 791, 799
 root of, 769, 774, 788, 805, 806
 of the trunk, 810-815
 tympanic, 874, 876
 ulnar, 816, 821-823, 825, 833
 deep branch, 826-829, 832, 833, and App., note 433
 dorsal cutaneous branch, 825, 828, 831
 palmar cutaneous branch, 826-828, 830, 833
 superficial branch, 828 and App., note 433
 of the upper arm, 822-824, 830, 831
 utricular, 935, 937
 utriculo-ampullary, 936, 937
 vagus, see "Nerve, pneumogastric"
 vesical, inferior, 836, 856, 890
 superior, 890 and App., note 476
 Vidian, 839, 862, 863, 947
 vestibular, 936, 937, 939, and App., note 5-1
 nuclei of, 769, 789
 of Wrisberg, 822, 830, 831
 Nerve cell, motor, 747
 Purkinje's, 747
 sensor, 747
 cells, 747, 750, 755-757, and App., note 331
 fibres, 745-750 and App., note 319
 medullated, 746, 748-750, and App., note 319
 non-medullated, 747, 748, 750, and App., note 323
 fibrils, ultimate, ending freely, 741 and App., note 323
 process, 747, and see also "Axon" and "Dendron"
 terminals, motor, 749, 750
 sensory, 748-750
 Nervous system, central, 751-808
 peripheral, 809-882
 sympathetic, 883-890
 Nervus vel nervi:
 abducens, 765, 774, 799, 803, 861, 868, 869, 886, 903
 accessorius, 774, 868, 872, 873
 ramus externus, 817-819, 868, 877
 internus, 863, 873
 acousticus, 765, 773, 803, 807, 869, 918, 919, 936, 937,
 939
 alveolares superiores, 861, 862, 864
 alveolares inferior, 859, 863-865, 867
 ampullaris lateralis, 935, 937
 posterior, 935-937
 superior, 935, 937, 938
 anococcygei, 836, 852, 853, 856
 articulares anteriores, 870, 871
 auricularis magnus, 816, 818, 819, 870, 871
 posterior, 869, 871
 auriculotemporalis, 859, 864, 867, 869-871, 921
 axillaris, 816, 821, 823
 buccinatorius, 864-866, 871, 877
 canalis pterygoidei [Vidian], 859, 862, 863, 947
 cardiacus imus, 884, 887
 inferior, 884, 887
 medius, 876, 884, 887
 superior, 874, 876, 884, 887

Nervus vel nervi:

- carotici externi, 859, 884
- caroticotympanici (sup., inf.), 874, 886
- caroticus internus, 859, 874, 876, 884, 886
- cavernosi penis minores, 890
- cavernosus penis major, 890
- cerebrales, 857-882
- cervicales, 893, 813, 816, 817, 876, 877
 - rami anteriores, 816, 817
 - cutanei dorsales, 813
 - posteriores, 811, 813
- ciliares (breves, longi), 861, 886, 894-896
- clunium inferiores, 810, 841, 849, 851
 - medii, 849, 851
 - superiores, 813, 849, 851
- coccygeus, 836, 856, 858, 885
 - ramus anterior, 856
- cochlearis, 936, 937, 939
- cutaneus *vel cutanei*:
 - antibrachii dorsalis, 824-826, 831, 835
 - lateralis, 821, 823, 826-828, 830, 833
 - medialis, 816, 821, 822, 830, 831, 833
 - rami brachii anteriores, 830
 - ramus ulnaris, 822, 830, 831
 - volaris, 822, 830, 833
 - brachii lateralis, 824, 831
 - medialis, 822, 830, 831
 - posterior, 824, 825, 831
 - cervicis (var.), 818, 819
 - colli, 816, 818, 819, 870, 871
 - femoris lateralis, 836-838, 848, 849, 858
 - posterior, 836, 840, 841, 849, 856
 - pedis dorsalis intermedius, 844
 - lateralis, 844, 845
 - medialis, 844
 - suræ lateralis, 840, 842, 848, 849
 - medialis, 840, 842, 849
 - digitales dorsales hallucis laterales et digiti secundi mediales, 844, 845
 - manus, 825, 831, 833, 834
 - pedis, 844, 845, 848
 - plantares communes, 846, 847, 850
 - proprii, 846, 847, 850
 - volares communes, 828, 832, 834
 - rami cutanei, 833
 - proprii, 832-835
 - dorsales clitoridis, 853
 - penis, 837, 852, 854-856, 890
 - scapulae, 813, 816, 821, 824
 - ethmoidalis, 859, 860
 - facialis, 765, 773, 803, 818, 819, 859, 861, 861, 864, 866-874, 936, 937
 - femoralis, 836-839, 858
 - rami cutanei femoris anteriores, 837, 838, 848, 851
 - frontalis, 860, 861, 871, 906
 - genitofemoralis, 836-838, 848, 856, 858
 - glossopharyngeus, 774, 803, 817, 859, 868, 869, 872-878, 880, 881
 - gluteus inferior, 840, 841
 - superior, 836, 840, 841
 - haemorrhoidales inferiores, 811, 852, 853
 - mediae, 836, 836, 890
 - superiores, 890
 - hypoglossus, 774, 803, 807, 817, 876-878, 880, 882
 - ilio-hypogastricus, 814, 815, 836, 837, 858
 - ramus cutaneus anterior, 814
 - lateralis, 815, 848, 851
 - ilio-inguinalis, 814, 836, 837, 848, 851, 858
 - infra-orbitalis, 856, 861, 862, 864-866
 - infratrocLEARIS, 859, 860, 866, 870, 871
 - intercostales, 810-812, 814, 884
 - rami cutanei anteriores (pectorales, abdominales) 810, 811, 814, 815
 - laterales (pectorales, abdominales), 810, 811, 813-815
 - intercostobrachiales, 815, 822, 830
 - intermedius, 765, 769, 774, 869, 873

Nervus vel nervi:

- interosseus (antibrachii), dorsalis, 825
- ischiadicus, 836, 840-842, 858, 890
- cruris, 843
- jugularis, 874, 876, 884
- labiales posteriores, 853
- lacrimalis, 859, 860, 862, 911
- laryngeus inferior, 820, 858, 875, 877, 881
- laryngeus superior, 828, 872, 874, 875, 877, 878, 880, 882, 887
- ramus externus, 874, 876-878, 880, 887
 - internus, 875-877, 880, 881
- lingualis, 859, 863-865, 867, 877, 880, 882
- lumbales, 811, 813, 836, 858, 884
 - ramus cutaneus dorsalis, 813
 - rami posteriores, 811, 813
- lumbo-inguinalis, 837, 838, 848, 851
- mandibularis, 806, 807, 858-865, 868, 877
- massetericus, 865
- masticatorius, 867
- maxillaris, 806, 807, 858, 860-864, 866
- meatus auditorius externi, 864, 869
- medianus, 816, 821-823, 826-828, 832
- meningeus medius, 860
- mentalis, 859, 865, 866
- musculocutaneus, 816, 821-823, 835
- mylohyoideus, 863, 865, 867
- nasociliaris, 859-861, 863, 866, 886
- nasopalatinus [Scarpae], 862
- nervorum, App., note ²²⁰
- obturatorius, 836, 837, 839, 851, 856, 858
 - ramus anterior, 839
 - cutaneus, 839, 848, 849, 851
 - posterior, 839
- occipitalis major, 813, 818, 871
 - minor, 813, 816, 818, 819, 871
 - tertius (var.), 813
- oculomotorius, 744, 765, 774, 789, 799, 803-805, 859-862, 868, 886, 903, 905
- olfactorius, 862, 863
- ophthalmicus, 858, 860-862
- opticus, 765, 766, 774, 803-807, 860, 861, 892, 897-899, 904, 907
 - pars intracranialis, orbitalis, 904
 - primitivus, 915
 - palatini anterior, medius, posterior, 859, 862, 863
 - perinei, 841, 852, 853, 856
 - peronaeus communis, 840, 842, 844, 845, 849
 - profundus, 844, 845, 848, 851
 - superficialis, 844, 848, 851
 - petrosus profundus, 863, 886
 - superficialis major, 807, 859, 860, 863, 869, 919
 - minor, 859, 860, 867
 - phrenicus, 816, 817, 820, 821, 858, 877, 878
 - plantares (medialis, lateralis), 843, 846, 847, 850, 851
 - rami cutanei, 816
 - ramus profundus, 846, 847
 - superficialis, 846, 847, 850
 - pterygoideus (externus, interitus), 867
 - pudendus, 811, 841, 852, 853, 856, 858, 890
 - radialis, 816, 821-828, 830, 831, 833, 835
 - ramus profundus, 825-828
 - superficialis, 825-828, 830, 831, 833, 835
 - recurrentis, 872, 875, 877-881, 887
 - saccularis, 936, 937, 939
 - sacrales, 811, 813, 836, 885, 890
 - rami anteriores, 856, 890
 - posterior, 811, 813
 - saphenus, 838, 839, 848, 849, 851
 - rami cutanei cruris mediales, 848, 849, 851
 - serotales anteriores, 814
 - posterior, 852, 856
 - sinuvertebrales, 886
 - spermaticus externus, 814, 837, 838, 848, 851
 - spheenopalatini, 861-863
 - spinales, 759, 809-856
 - rami anteriores, 759, 810, 812
 - posterior, 759, 810-813

- Nervus *vel* nervi:
- spinosus, 860, 867, 868
 - splanchnicus major, 884, 885, 888, 889
minor, 884, 885, 888
 - stapedius, 868
 - subclavius, 817, 820, 821
 - sublingualis, 864, 867
 - suboccipitalis, 813
 - subscapulares, 815, 816, 821-823
 - supraclavicularis, 815-819, 820, 831, 835
 - supra-orbitalis, 859-861, 865, 870, 871, 909
 - suprascapularis, 816, 817, 821, 824
 - supratrochlearis, 859, 860, 866, 870, 871, 909
 - suralis, 812, 844, 854, 819, 851
 - temporalis profundus, anterior, 865
 medianus, 877
 posterior, 865
 - tensoris tympani, 867
 - veii palatini, 867
 - tentorii, 860, 864
 - thoracales, 810-814, 858
 anterior, 810
 cutaneus dorsalis, 810, 813, 824
 lateralis, 810, 811, 814, 815
 - thoracales anteriores, 816, 817, 821
 posterores, 821
 - thoracalis longus, 815, 816, 821
 - thoracodorsalis, 821-823
 - tibialis, 840, 842, 843, 847, 849
 - trigeminus, 765, 799, 803, 858-871
 portio major, portio minor, 769, 859, 863, 867, 873
 - trochlearis, 767, 774, 799, 803-805, 860, 868
 - trypamicus, 874, 876
 - ulnaris, 816, 821-823, 825-833
 ramus cutaneus palmaris, 826-828, 830, 833
 dorsalis manus, 825, 828, 831
 profundus, 826-829, 832, 833
 superficialis, 828
 - utricularis, 935, 937
 - vagus, 774, 803, 807, 817, 820, 868, 872-884, 887
 - vesicales inferiores, 836, 856, 890
 superiores, 890
 - vestibuli, 936, 937, 939
 - zygomaticus, 859, 862, 911
- Network, see "Plexus"
- nervous, App., note 322
- Neurilemma, 746, and App., note 313
- Neurolemma, see "Neurilemma"
- Neurologia, 743-890
- Neurology, 743-890
 general considerations, 745-750
- Neuron, App., note 321
- Nidus avis, 771
- Nodal point, 892
- Node of Ranvier, 746 and note
- Nodule (of the cerebellum), 767, 770-772
- Noduli lymphatici conjunctivatae, 910
- Nodulus vermis, 767, 770-772
- Nose, 941-948
 accessory cavities of the, 544
- Nostrils, 942, 946, 948
- Notch, cerebellar, anterior, 770
 posterior, 770-772
- of Rivinus, 923, 924
- of the tentorium, 805, 860, and App., note 412
- Nucleus or nuclei:
- abducens, 769, 787, 799, and App., note 376
 - accessory vagoglossopharyngeal, 767, 786
 - ala cinerea, 769, 786
 - ambiguus, 769, 786
 - amygdala, 775, 782, 792
 - amygdaloid, 775, 782, 792
 - of the anterior tubercle (of the optic thalamus), 785, 794
 - arcuati, 786, 787
 - of the auditory nerve, accessory, 769, 787
 dorsal, 769, 787
 inner, 769, 787
 outer, 769, 787
 ventral, 769, 787
 - of the corpus striatum, extraventricular, see "Nucleus, lenticular"
 - intraventricular, see "Nucleus, caudate"
 - of the cranial nerves, 769
 - of the cuneate column, 786, 796, 797
 - of Deiters, 769, note
 - dentate (nucleus dentatus), 772, 773, 797
 - of the descending root of the fifth (cranial) nerve, 769
 - dorsalis [Stillingi, Clarkii], 755
 - emboliformis, 772, 773
 - enucleate medialis, 787
 - extraventricular of the corpus striatum, see "Nucleus, lenticular,"
 - of the facial nerve (facial nucleus), 769, 787, 800
 and App., note 376
 - fastigii, 772, 773
 - of the fifth (cranial) nerve, motor, 769
 sensory, 769, 787
 lower, 769
 - funiculi cuneati, 786, 796, 797
 gracilis, 786, 796, 797
 - of the funiculus solitarius, 769
 teres, 787
 - of the geniculate body, external, 798
 internal, 789
 - globosus, 772
 - of the glossopharyngeal nerve, motor, 769
 sensory, 769, 787
 - habenulae, 791, 794, 795
 - of the hypoglossal nerve, 769, 786, 800
 - hypothalamicus, 785, 791, 792, 797
 - intraventricular of the corpus striatum, see "Nucleus, caudate"
 - lateral, of the medulla oblongata (nuclei laterales), 786
 - lemnisci lateralis, 788, 796
 - of the lens (nucleus lentis), 893, 900
 - lenticular, 766, 792-794
 - lentiformis, 766, 792-794
 - of Luys, 785, 791, 792, 797, and App., note 402
 - of the medulla oblongata, lateral, 786
 - of nerve cell, 747
 - of nerves, see under respective nerves
 - of the nerves supplying the muscles of the orbit, 799
 - nervi abducens, 769, 787, 799
 - accessorii, 769
 - acustici (dorsalis, ventralis), 787
 - cochlearis, 769, 787, 800
 - facialis, 769, 787, 800
 - glossopharyngei motorius, 769
 - hypoglossi, 769, 786, 800
 - oculomotorii, 769, 789, 799
 - optici, 769
 - trigemini motorius, 769
 - sensibilis, 769, 787
 - opticus, 769, 787, 799
 - trigeminal motorius, 769
 - sensibilis, 769, 787
 - trochlearis, 769, 788, 791, 799
 - vagi (motorius, sensibili), 769
 - vestibuli, 769
- of neurilemma, 746 and App., note 313
- of the oculomotor nerve, 769, 789, 799
- olivares accessorii, 786
- olivary, accessory, dorsal,
 external, 786
 internal, 786
- inferior (nucleus olivaris inferior), 773, 786,
 787, 790, 797
- superior (nucleus olivaris superior), 787,
 796

* Nucleus or nuclei:
of the optic nerve, 769 and App., note 378
of the optic thalamus, anterior, 785, 794
 lateral, 794
 mesial, 794
originis nervorum cerebellum, 769
parolivary, see "Nucleus, olivary, accessory"
of the pneumogastric nerve, motor, 769
 sensory, 769
pontis, 788
principal, of the glossopharyngeal and pneumogastric nerves, 769, 786
pyramidal (nucleus pyramidis), 787 and App., n. 396;
 see also "Nucleus, olivary, accessory, internal"
of the quadrigeminal body (lower or posterior), 788, 791
radicis descendentes nervi trigemini, 769
red, 785, 789, 791
of the roof, 772, 773
ruber, 785, 789, 791
of the sixth cranial nerve (abducent nucleus), 769, 787, 799, and App., note 378
of the slender column, 786, 796, 797
of the solitary bundle, 769
of the spinal accessory nerve, 769
of the superficial arched fibres, 786, 787
segmental, 785, 789, 791
thalamus anterior, 785, 794
 lateralis, 794
 medialis, 794
tractus solitarius, 769
 spinalis nervi trigemini, 769
of the trigeminal nerve, see "Nucleus of the fifth (cranial) nerve"
of the trochlear nerve, 769, 788, 791, 799
vagal, see "Nucleus of the pneumogastric nerve"
vagoglossopharyngeal, accessory or efferent, 769,
 786
 principal, 769, 786

O.

Obex, 768
(Esophageal cord, see "Cord, cesophageal"
Olfactory bulb, 774, 775, 803, 807, 862
 groove, 914
 organ, 941-948
 triangle, see "Trigonum olfactorium"
Oliva, 752, 753, 763, 765, 766
Olivary body, see "Olive"
Olive, lower, 752, 753, 763, 765, 766, and App., note 377
Operculum, 777
 of the pituitary body, see "Diaphragm, pituitary"
Optic commissure or chiasma, 763-766, 774-776, 792, 793, 798, 804, 805, 815
cup, 914, 915
excavation, nerve, etc., see "Excavation, optic," "Nerve, optic," etc.
lobes, see "Corpora quadrigemina," also note 5 to p. 760
recess, 764, 793
 thalamus, 760, 761, 763, 764, 767, 782, 785, 790-797
Ora serrata, 892, 893, 895, 898, 901
Orbicularis oculi, 894-897, 901
Orbit, 903-907
 entrance to the, 910
Orbita, 903-907
Orbital cone of fat, 902, 906, 907, 911
 periosteum, 807, 902, 904, 906, 907
Organ, auditory, 917-940
 of Corti, 939
 of hearing, 917-940
 of Jacobson, 943, 948
 olfactory, 941-948
 of smell, 941-948
 tactile, 949-956
 touch, 949-956
 vision, 891-916

Organa sensuum, 891-956
Organon auditus, 917-940
 olfactus, 941-948
 spirale [Cortii], 939
 tactus, 949-956
 visus, 891-916
 vomeronasale [Jacobsoni], 943, 948
Organs of the senses, 891-956
Orifice of the aqueduct of the cochlea, internal, 930, 934
 of Fallopian (in internal auditory meatus), 934, 935, and App., n. 396
 of the vestibule, external, 933
 internal, 930
 of the cochlea, vestibular, 931, 932, 935, 937
 of the Eustachian tube, pharyngeal, 918, 919, 928
 tympanic, 918, 928
 of the pituitary diaphragm, 804
Orifices of the sudoriferous ducts, 950
Origin of nerve fibres, 750
Ossicles, auditory, 918, 919, 925
Ossicula auditus, 918, 919, 925
Ostium pharyngeum tubæ auditivæ, 918, 919, 928
 tympanicum tubæ auditivæ, 918, 928
Otic vesicle, 762, 858

P.

Pacchionian bodies, 779, 802
Pacinian corpuscle, 749, 834, and App., note 378
Pallium, 760 and note, 761
Panicus adiposus, 950, 951
Palpebrae (inferior et superior), 908-911, 913
 fascies anterior, 908
 posterior, 909
† pars orbitalis, tarsalis, 908
Palpebral cleft, 908
 fascia, 907, 909
Papilla or papilla:
 of the corium (papillæ corii), 950, 951
 of hair, 952, 953
 lachrymal (papilla lacrimalis), 908-910, 912
 nervi optici, 892, 898, 899, 916
 optic, 892, 898, 899, 916
 plii, 952, 953
Paries (cavi tympani) jugularis, 926, 933
 labyrinthicus, 923, 927
 lateralis, 924, 926
 membranaceus, 927
 tegmentalis, 926, 931
*Parolfactory area, 777, 793, 795
Pars basilaris pontis, 787, 788
centralis ventriculi lateralis, 781, 784, 785, 792
choroidalis iridis, 893, 896
ciliaris retinae, 892, 893, 898
dorsalis pontis, 788
flaccida (membrana tympani), 922, 924, 925
frontalis capsulae internæ, 793, 794
grisea hypothalami, 792
libera columna fornicis, 783, 795
mamillaris hypothalami, 760, 761
marginalis (sulci cinguli), 777
occipitalis capsule internæ, 794
opercularis (gyri frontalis inferioris), 777, 800
optica hypothalami, 760, 761
 retinae, 892, 893, 898
orbitalis (gyri frontalis inferioris), 777
prima radicis nervi facialis, 769
secunda radicis nervi facialis, 769
subfrontalis (gyri cinguli), 777
tecta columnæ fornicis, 783, 795
tensa (membrana tympani), 924
triangularis (gyri frontalis inferioris), 777
Part, nasopharyngeal, of the lateral wall of the nasal fossæ, 944, 946
Peduncle or peduncles:
 cerebellar, see "Peduncle of the cerebellum"
 of the cerebellum, inferior, 765, 771-773, 786, 787
 middle, 765-769, 771-773, 791

- Peduncle or peduncles:
 of the cerebellum, superior, 760, 761, 766-768, 717-
 773, 788, 789
 cerebral, 760, 761, 765-768, 774, 789-791
 of the corona radiata, see "Capsule, internal"
 of the corpus callosum, 764, 776, 793
 olfactory, App., note 365
 of the pineal body, 782, 794, and App., note 365
Pedunculus cerebri, 760, 761, 765-768, 774, 789-791
 coronæ radiatæ, 766, 790
 corporis callosi, 777
 flocculi, 767, 771
 thalamæ inferior, 792, 797
Perforate spiral tract, 932, 935, and App., note 531
Perichoroidal space, 893
Perilymphatic space, 937-939
Perineurium, 746 and App., note 329
Peri-orbita, 807, 902, 906, 907
Perosteum, orbital, 807, 902, 904, 906, 907
Peripheral nervous system, 809-882
Pes accessorius, 782, 785, 791, 794
 hippocampi, 782, 792
Pharynx, lateral recess of the, 919, 946
Pia mater, cranial (pia mater encephali), 779, 785
 spinal (pia mater spinalis), 754, 755, 759
Pillar of the fornix, anterior, 776, 781-784, 790-795
 posterior, 783, 784, 794, 795
Pillars of the iris, see "Ligamentum pectinatum iridis"
Pilus, 952, 953
Pineal body, see "Body, pineal"
 recess, 764 and App., note 365
 stria, 763, 782, 785, 794, and App., notes 359 and 392
Pinguecula, 908 and App., note 500
Pit, physiological, 892, 898, 899
Pituitary body, 760, 761, 764, 774, 776, 802, 808
 diaphragm, 805, 808, and App., note 41
 orifice of, 804
 membrane, 947, 948
Plate, perforated, see "Space, perforated"
 tragus, 921, 922
Plexus, nervous; **plexus nervorum**:
 alveolaris inferior, 859
 aortic, abdominal, 888-890
 thoracic, 879, 887
 aorticus abdominialis, 888-890
 thoracalis, 879, 887
 brachial, 816, 817, 821-823, 884
 axillary or infracervicular portion, 822,
 823
 cervical or supraclavicular portion, 817,
 821
 cutaneous area of, 811
 brachialis, 816, 817, 821-823, 884
 pars infracervicularis, 822, 823
 supraclavicularis, 817, 821
 cardiac (plexus cardiacus), 878, 887
 caroticus communis, 876
 externus, 859, 864
 internus, 859, 867, 874, 884, 886, 903
 carotid, common, 878, 887
 external, 859, 864
 internal, 859, 867, 874, 884, 886, 903
 cavernous, 886
 penis, 890
 cavernous (in the cavernous sinus), 888
 of the penis, 890
 cervical (plexus cervicalis), 816-819, 878, 884
 cutaneous area of, 816,
 888
 coccygeal (plexus coccygeus), 856 and note to
 p. 331
 celiac (plexus coeliacus), App., note 474
 coronarius cordis anterior, 887
 posterior, 887
 coronary, left or anterior, 887
 right or posterior, 887
 deferential (plexus deferentialis), 890
 dental, inferior (plexus dentalis inferior), 859, 865
 superior (plexus dentalis superior), 862
 diaphragmatic, 888, 889
Plexus nervosus; **plexus nervorum**:
 epigastric, 888, 889 and App., note 474
 of the facial (external maxillary) artery, 859
 gangliated, ciliary, 894, 896, and App., note 474
 ganglia oculi ciliares, 894, 896
 gastric, 872, 879, 888, 889 and App., note 465
 gastricus anterior, 879
 posterior, 872
 superior, 888, 889
 haemorrhoidal, middle, 890
 superior, 890
 haemorrhoidalis medius, 890
 superior, 890
 hepatic (plexus hepaticus), 888, 889
 hypogastric (plexus hypogastricus), 888, 889
 iliac (plexus iliacus), 888, 890
 ilealis, 888, 889
 lumbalis, 836, 837, 885
 lumbar, 836, 837, 885
 cutaneous area of, 811
 lumbosacral (plexus lumbosacralis), 836, 890
 maxillaris externus, 859
 internum, 867
 maxillary, internal, 867
 meningcal, middle, 859, 867
 meningeus, 859, 867
 mesenteric, inferior (plexus mesentericus inferior),
 888-890
 superior (plexus mesentericus superior),
 888, 889
 oesophageal (plexus oesophageus), 872, 879
 parotid (plexus parotideus), 871
 pharyngeal (plexus pharyngeus), 876, 877
 phrenic (plexus phrenicus), 888, 889
 prostatic (plexus prostaticus), 890
 pudendo-anal, 836, note
 pudendus, 855, 856, 890
 pudic, 836, 856, 890 and note to p. 836
 pulmonalis anterior, 820, 878
 posterior, 872, 879
 pulmonary, anterior, 820, 878
 posterior, 872, 879
 renal (plexus renalis), 888, 889
 sacral (plexus sacralis), 836, 856, 885
 cutaneous area of, 811
 solar, 888, 889, and App., note 474
 spermatic (plexus spermaticus), 888, 889
 splenic, 888, 889
 subclavian (plexus subclavius), 816, 884, 887
 suprarenal (plexus suprarenalis), 888, 889
 sympathetic (plexus sympathetic), 888-890
 thyroid, inferior (plexus thyroideus inferior), 884
 tympanic (plexus tympanicus Jacobsoni), 874
 of the vas defensorum, 890
 vertebral (plexus vertebralis), 814, 884, 887
 vesical (plexus vesicalis), 890
Plexus, vascular:
 cavernous, of the inferior turbinals (plexus cavernosus concharum), 945 and App., note 556
 choroid, of the fourth ventricle, 764, 767, 774
 of the lateral ventricle, 762, 763, 780, 781,
 784, 785, 790
 of the third ventricle, 764, 785, 791
 choroideus ventriculi lateralis, 762, 763, 780, 781, 784
 785, 790
 quarti, 764, 767, 774
 tertii, 764, 785, 791
Plica vel plica:
 ciliare, 895
 incudis, 925, 926
 iridis, 896
 lacrimalis (Hasneri), 913
 malleolaris anterior, 924
 posterior, 924
 membranæ tympani anterior, 924
 posterior, 924
 nervi laryngei, 875
 salpingopalatina, 928
 semilunaris conjunctivæ, 908, 910, 912
Point nodal, 892

Pole, anterior, of the eyeball, 892
of the lens, 900
frontal, 774, 775, 778, 779
occipital, 774, 775, 778
posterior, of the eyeball, 890
of the lens, 900
temporal, 774, 775, 779, 782, 793

Polns anterior bulb., 892

lentis, 900

frontalis, 774, 775, 778, 779

occipitalis, 774, 775, 778

posterior bulb., 892

lentis, 900

temporalis, 774, 775, 779, 782, 793

Pons [Varoli], 760, 761, 763-766, 771-774, 776, 787, 788, 908

Pons Varolii, basilar or ventral portion, 787, 788

posterior or dorsal portion, 788

Ponticulus of the auricle, 921

Portio intermedia of Wristerberg, 765, 769, 774, 869, 873

*Portion, cupular, of the epitympanic recess, 922, 925, 926, and App., note 611

Porus sudoriferus, 950

Post-nasal region, 944

Pouch of Prussak, 922, 924, 925

of the tympanum, anterior, 924

inferior external, 922, 924, 925

posterior, 924

Præcuneus, 777

Precuneus, 777

Primary divisions of spinal nerves, anterior, 759, 810, 812 posterior, 759, 810-813

Process, caudal, of the helix, 921
ciliary, 892, 893, 895, 897, 901
of the incus, 923, 925, 927
short, 925, 927
of the malleus, long, 923, 925
short, 923, 925
nerve, 747, and see also "Axon" and "Dendron"
posterior, of the cartilaginous septum of the nose,
943, 947.

protoplasmic, see "Dendron"

sphenoidal, of the cartilaginous septum of the

nose, 943, 947

triangular, 921, 922

Processus brevis, 923, 925
ciliaris, 892, 893, 895, 897, 901
Folianus, 923, 925
gracilis, 923, 925
lenticularis, 923
mallei anterior [Folii], 923, 925
lateralis, 923, 925
obtusus, 923, 925
orbicularis, 925
reticularis, 755, 756
sphenoidealis (septi cartilaginei), 942, 947
triangularis, 921, 922

Prominence of the external semicircular canal, 923, 927
maleolar, 924, 925, and App., note 615

spiral, 939 and App., note 616

Prominentia canalis semicircularis lateralis, 923, 927
maleolaris, 924, 925

spiralis, 939

Promontorium (cavi tympani), 923, 927, 931, 933

Promontory (of the tympanic cavity), 923, 927, 931, 933

Proper substance of the cornea, 893

Prosencephalon, 760, 761

Protoplasmic process, see "Dendron"

Prussak, pouch of, 922, 924, 925

Pulley (of the superior oblique muscle), see "Trochlea"

Pulvinar, 766, 767, 769, 795

Punctum lacrimale, 908-910, 912

Pupil, 894, 896, 908

Pupilla, 894, 896, 908

Papillary membrane, 916

Purkinje, cell or corpuscle of, 747

Putamen, 766, 790-797

Pyramidal bundles, see "Bundles, pyramid"
of the medulla oblongata, 752, 753, 764, 765, 773,

786, 787, 790, 791, 800

posterior, see "Funiculus gracilis"

Pyramid (of the tympanum), 923, 927, 931

of the vestibule, 931, 933, 935

of the womb, 770-772

Pyramidal tract, 790, 800

Pyramis medullæ oblongatae, 752, 753, 764, 765, 773, 786, 787,

790, 791, 800

vermis, 770-772

vestibuli, 931, 933, 935

Q.

Quadrat lobe of the cerebellum, App., note 281

lobule of the cerebellum, 777

Quadrigeminal bodies, 760-764, 766-768, 791, note 5 to p. 760,

and App., note 372

body, inferior or posterior, 767, 791, 796, and

App., note 372

superior or anterior, 767, 789, 796, and

App., note 372

lamina, 764-776, 802, 808

Quadrilateral lobe or lobule of the cerebellum, 770

R.

Radiato corporis callosi, 780, 782, 790, 791, 801

striati, 790

occipitothalamica [Gratioleti], 791, 794, 798

Radiation of the corpus callosum, 780, 782, 790, 791, 801

striatum, 790 and App., note 401

facial, of the superior maxillary nerve, 861

nasopalatine, of the superior maxillary nerve,

863

optic (of Gratiolet), 791, 794, 798

segmental, App., note 405

Radix vel radices:

cochlearis, 769, 787

descendens (mesencephalica) nervi trigemini, 769, 788

nervi abducentis, 769, 805

accessori cerebralis, 769, 873

spinalis, 769, 786, 873

acustici, 769, 774, 787

facialis, 769, 771, 774, 787

glossopharyngei, 769, 774, 787, 876

hypoglossi, 769, 774, 786

oculomotorii, 769, 774, 788, 799

trigemini, 769, 774, 786, 787, 860

trochlearis, 769, 774, 788, 860

vagi, 774, 873, 876

motoria, 769

sensibilis, 769

nervorum cerebratalium, 774

spinatum (anteriores, posteriores), 752,

753, 755-759, 769, 810, 812

pili, 952, 953

tractus opticus (lateralis, medialis), 765, 798

unguis, 956

vestibularis, 769, 787

Ramification of axis-cylinder in motorial end-organ, 749

Ramus vel ramus:

alveolares (superiores), 859, 861, 862

auricularis (nervi vagi), 868, 876

bronchiales anteriores, 820, 878, 887

posterior, 872, 879

buccales (nervi facialis), 871

calcanei mediales, laterales, 843-851

cardiacus (nervi laryngi superioris), 874, 877, 887

inferior (nervi vagi), 820, 878, 887

superior (nervi vagi), 817, 872, 876, 878, 887

celiacus (chorda cesophagæ posteriores), 872

collis (nervi facialis), 818, 819, 871

communicans, 759, 810, 812, 816, 836, 837, 884-887

dentales, 862, 865

descendens nervi hypoglossi, 817, 858, 877

dorsalis manus (nervi ulnaris), 825

digastricus, 869, 871

frontalis, 860, 861, 865, 870, 871

gingivales, 862, 865

hepatici, 872, 879

infrapatellaris, 838, 848

isthmi faucium (nervi lingualis), 864, 867

- Ramus *vel* rami:
- labiales inferiores, 865, 866
 - superiores, 865, 866, 871
 - laryngopharyngei, 876
 - linguales (nervi glossopharyngei), 875, 881
 - (nervi lingualis), 880, 882
 - mammarii, 815
 - marginalis mandibulae, 818, 866, 870, 871
 - meningeus, 886
 - mentales, 866
 - nasales anteriores, 859, 863
 - externi, 863, 865, 866
 - interni (mediales), 862
 - (laterales), 863
 - posteriores, 859, 863, 947
 - occipitalis (nervi facialis), 871
 - cesophagei, 872, 877-881
 - palmaris nervi mediani, 826-828, 830, 833
 - palpebrales inferiores, 861, 866, 870
 - superiores, 870
 - parotidei, 864
 - pericardiaceus, 820
 - perineales, 840, 841, 849, 852, 853
 - pharyngeus, 872, 874-878, 884
 - phrenico-abdominales, 820, 888
 - pulmonales (trunci sympathici), 884, 887
 - renalis (nervi splanchnici minoris), 888
 - sacculo-ampullaris, 937
 - scrotalis (nervi cutanei femoris posterioris), 841
 - stylohyoideus, 869
 - stylopharyngeus, 817, 877
 - submaxillares (nervi lingualis), 864, 867
 - temporales (nervi facialis), 870, 871
 - thyreo-hyoideus, 817, 877, 878
 - tonsilares, 881
 - tracheales, 872, 875, 878, 880, 881
 - utriculo-ampullaris, 936, 937
 - zygomatici (nervi facialis), 866, 870, 871
 - zygomatocfrontalis, 862, 865, 870
 - zygomatotemporalis, 862, 870
- [†] Ranvier, node or constriction of, 746 and note
- Raphe of the medulla oblongata (raphe medullæ oblongatae), 764, 767, 773, 786
- of the pons Varolii (raphe pontis), 787, 788
- Recess elliptical, 930, 931, 933
- * epitympanic, 924-928, 932
- * cupular portion of the, 922, 925, 926, and App., note 381
- of the fourth ventricle, lateral, 767
- of the infundibulum, 764 and App., note 381
- lateral, of the fourth ventricle, 767
- of the pharynx, 919, 946
- optic, 764, 793
- pineal, 764 and App., note 385
- of the pharynx, lateral, 919, 946
- of the posterior perforated space, anterior, 764 and App., note 382
- posterior, 764, 772, 788, 791, and App., note 382
- sphenoo-ethmoidal, 944, 945
- spherical, 930, 931, 933
- suprapineal, 764 and App., note 385
- triangular, 782, 784, 792, 795, and App., note 389
- Recessus cochlearis, 930
- ellipticus, 930, 931, 933
- epitympanicus, 924-928, 932
- (fossa interpeduncularis), anterior, 764
- posterior, 764, 772, 788
- 791
- infundibuli, 764
- lateralis ventriculi quarti, 767
- membrana tympani anterior, 924
- posterior, 924
- superior, 922, 924, 925
- opticus, 764, 793
- pharyngeus (Rosenmuelleri), 919, 946
- pinealis, 764
- sphaericus, 930, 931, 933
- Recessus spheno-ethmoidalis, 944, 945
- suprapinealis, 764
- triangularis, 782, 784, 792, 795
- Reflex arc, 757
- Regio olfactoria, 948
- respiratoria, 948
- Region of the atrium, see "Atrium of the middle meatus of the nose"
- olfactory, 948
- respiratory, 948
- tegmental, subthalamic, App., note 402
- transitional, App., note 402
- Reil, covered band of, see "Cingulum"
- island of, 779, 790, 792-795
- Reissner's membrane, 939
- Reservoir, lachrymal, 908, 910, 912, 913
- subarachnoid, 785, 802, 803, and App., note 409
- cerebellomedullary, 802 and App., note 409
- of the corpus callosum, App., note 409
- of the great vein of Galen, 802 and App., note 409
- of the interpeduncular space, 802, 803, and App., note 409
- of the lamina cinerea, App., note 409
- of the optic commissure, 802, 803, and App., note 409
- peripeduncular, App., note 409
- of the pons, 802, 803, and App., note 409
- of the valvulae and fissure of Sylvius, 802, 803, and App., note 409
- Restiform body, 765, 771-773, 786, 787
- Rete mucosum, 950, 956
- Reticular layer of the corium, 950
- Retina, 892, 897-899, 901
- pars ciliaris, 892, 893, 898
- optica, 892, 893, 898
- rudiment of, 914
- *Retinacula of the skin (retinacula cutis), 953, 956, and App., note 683
- Rhinencephalon, 760, 761, 775
- Rhombencephalon, 760, 761, 764
- Rictus oculi, 908 and App., note 497
- Ridge, orbital, of the superior maxillary bone, 912, 913
- Ridges of the matrix of the nail, 956
- of the skin, 950-956
- *Rima cornearis, 893 and App., note 481
- palpebrarum, 908 and App., note 497
- Ring, common tendinous (for the origin of the muscles of the orbit), 903, 905
- tympanic, 924, 926
- Riolan's muscle, 909, 910, and App., note 501
- Rivai, subarachnoid, App., note 409
- Rivinus, notch of, 923, 924
- Rivuli, subarachnoid, App., note 409
- Rivus lachrymalis, 909
- Rod cell, 899 and App., note 491
- Rods, retinal, 899
- Rolando, fissure of, 776, 778
- substantia gelatinosa of, 754, 755, 786, 787, 796
- Roof of the fourth ventricle, 766, 773
- of the tympanum, 926, 931
- Root or roots:
- of the abducent ocular nerve, 769, 805
 - ascending, of the fifth nerve, 769, 786, 787
 - of the auditory nerve, 769, 774, 787
 - lateral, posterior, or cochlear root, 769, 787
 - mesial, anterior, or vestibular root, 769, 787
- bulbar, of the fifth nerve, 769, 786, 787
- of the spinal accessory nerve, 769, 873
- cochlear, of the auditory nerve, 769, 787
- of the cranial nerves, 774

- Root or roots:**
 descending, of the fifth nerve, 769, 788
 of the facial nerve, 769, 771, 774, 787
 of the fifth cranial nerve, 769, 774, 786, 860
 ascending or bulbar root, 769, 786, 787
 descending or mesencephalic root, 769, 788
 of the glossopharyngeal nerve, 769, 774, 787, 876
 of hair, 952, 953
 of the hypoglossal nerve, 769, 774, 786
 mesencephalic, of the fifth nerve, 769, 788
 motor, of the pneumogastric nerve, 769
 of nail, 956
 of the oculomotor (third cranial) nerve, 769, 774, 788, 799
 of the olfactory tract, inner or mesial, 765, 775
 middle or grey, 765, 775, and App., note 368
 outer or lateral, 765, 775
 of the optic tract, lateral, 765, 798
 mesial, 765, 798
 of the optic ganglion, long, see "Nerve, petrosal, superficial, small"
 of the pneumogastric or vagus nerve, 774, 873, 876
 motor root, 769
 sensory root, 769
 sensory, of the pneumogastric nerve, 769
 of the spinal accessory nerves, 769, 786, 873
 spinal, of the spinal accessory nerve, 769, 786, 873
 of spinal nerve, anterior, 752, 755, 757, 759, 766, 810, 812
 posterior, 752, 753, 755-759, 766, 810, 812
 of the spinal nerves, filaments of the, 759, 812
 of the trochlear nerve, 769, 774, 788, 860
 vestibular, of the auditory nerve, 769, 787
- Root-bundles of the abducent ocular (sixth cranial) nerve,** 787
 of the hypoglossal nerve, 786
 of the oculomotor (third cranial) nerve, 789
- Root-ganglion of the vagus nerve, see "Ganglion of the root of the pneumogastric nerve"**
- Rosenmüller, fossa of, 919, 946
- *Rostral lamina, 776 and App., note 387
- Rostrum of the corpus callosum (rostrum corporis callosi), 764, 777, 793, 795, and App., note 387
- Rudiment of the ciliary body, 915
 of the eye, 914
 of the vitreous body, 914, 915
- S.**
- Saccule, 936, 937, 939
 Sacculus, 936, 937, 939
 Saccus endolymphaticus, 836, 837
 lacrimalis, 912, 913, 915
 Santorini, notch of, see "Incisurae Santorioni"
 Scala media, see "Canal of the cochlea"
 tympani, 930, 932, 934-937, 939
 vestibuli, 930, 934, 935, 937, 939
 Scapha, 920
 Scapus pili, 952, 953
 Schleim, canal of, 893, 897
 Schneiderian membrane, 947, 948
 Schwann, sheath of, see "Neurilemma"
 white substance of, App., note 310
 Selera, 892-895, 897-899, 902, 915
 Sclerotic, 892-895, 897-899, 902, 915
 Sense organs, 891-956
 Sensory nerve terminals, 748-750
 Septum cartilagineum nasi, 943
 intermedium, 755
 lucidum, 763, 764, 776, 781, 782, 808
 membranaceum nasi, 942
 mobile nasi, 913, 942, 943
 nasi, 905, 914, 943, 945-948
 of the nose, 905, 914, 943, 945-948
 bony, 943
 cartilaginous, 943
 movable, see "Septum mobile nasi"
 osseous, 943
- + Septum orbitale, 907, 909
 osseum nasi, 943
 pellucidum, 763, 764, 776, 781, 782, 808
 posterius, 755
 posticum (of the subarachnoid space of the spinal cord), 755, 759, and App., note 345
 (of the spinal cord), posterior intermediate, 755
 median, 756
- + subarachnoideale, 755, 759
- Shaft of hair, 952, 953
- Sheath:**
 cellular, App., note 320
 common, App., note 320
 connective-tissue (of peripheral nerves), 746 and App., note 320
 fascial, of the external rectus muscle, 907 and App., note 495
 of the levator palpebrae superioris muscle, 907 and App., note 495
 of the muscles of the orbit, 906, 907, and App., note 495
- Henle's, App., note 326
- medullary, 746 and App., note 319
- of the optic nerve, 897, 899
 arachnoid, 899
 dural, 899
- primitive, see "Neurilemma"
 of Schwann, see "Neurilemma"
 synovial, of the trochlea or pulley, 903, 904, and App., note 494
- Shrapnell's membrane, see "Membrana flaccida"
- Sight, organ of, 891-916
- Sinus or sinuses:**
 circularis iridis, 893, 897
 of the dura mater (sinus durae matris), 804-807
 confluence of, 804, 808, 860
 frontal (sinus frontales), 904, 906, 914
 of the internal jugular vein, 804, 806, 807
 maxillary (sinus maxillaris Highmorei), 918, 944-947
 meningeal, 804-807
 paranasal, 944
 sphenoidal (sinus sphenoidalis), 903, 905, 907, 944, 945, 947
 venous sclerae, 893, 897
 venous, of the cranium, 804-807
- Skin, the, 949-956**
 true, see "Corium"
- Smell, organ of, 941-948**
- Solitary bundle, see "Funiculus solitarius"**
- Space or spaces:**
 epidural, 758, 759
 inter vaginal, 899
 of the optic nerve, subarachnoid, 899, note
 perforated, posterior, 764, 765, 774, 789-792
 periorchoidal, 893
 peri lymphatic, 937-939
 subarachnoid, of the brain, 802, 803
 of the optic nerve, 899
 of the spinal cord, 759, 802, 803
 subdural, of the brain, 803
 of the optic nerve, 899
 of the spinal cord, 759
 of Tenon, 907
 zonular, 893, 895, and App., note 480
- Spatium vel spatia:**
 interfaciale [Tenoni], 907
 inter vaginalia, 899
 periorchoidal, 893
 peri lymphaticum, 937-939
 zonularia, 893, 895
- Spheno-ethmoidal recess, 944, 945
- Sphincter muscle of the pupil, 893, 896
- Spina helicis, 920, 921
 supraneatum, 921, 923, 927
 tympanica (major, minor), 923, 924
- Spinal cord, 752-756, 808
 membranes of, 758, 759, 806, 807
 transverse sections of, 754, 755
 vessels of, 754

- Spinal marrow, see "Spinal cord"
 nerves, 809-856
 Spine of the helix, 920, 921
 suprarectal, 921, 923, 927
 tympanic, anterior, 923, 924
 posterior, 923, 924
 Spiral tract, perforate, 932, 935; and App., note 534
 Splenium of the corpus callosum (splenium corporis callosi), 775, 780, 783, 794, 795, 808
 Spot, yellow, 898
 Stalk of the flocculus, 767, 771
 of the thalamus, lower, 792, 797
 Stapes, 922, 923, 925
 Stem of hair, 952, 953
 Stensen, canal of, 913, 946, and App., note 453
 Strands, lateral, of the pons, 766, note
 Stratum albo-cinereum inferius, App., note 400
 superius, App., note 400
 album profundum, 789
 bacilliform, 899, note
 cinereum, 789 and App., note 400
 cornatum, 950, 956
 cutaneum (membrana tympani), 925
 dorsale, App., note 492
 granularum externum, 899, note
 internum, 899, note
 germinativum [Malpighii], 950, 956
 griseum centrale, 788, 789, 791
 colliculi superioris, 789
 intermedium, App., note 402
 interolivare lemnisci, 786
 lemnisci, 789 and App., note 400
 lucidum, 930
 mucosum (membrana tympani), 925
 nigrum, 899, note
 nucleare (medullæ oblongatae), 767, 772
 opticum, of the retina, 899, note
 of the upper or anterior quadrigeminal body, 789 and App., note 400
 papillare, 950, 956
 retinæ, 893, 895, 899, 915
 reticulare of the corium, 950
 (retinæ) externum, 899, note
 internum, 899, note
 zonale (of the corpora quadrigemina), 788, 789, and App., note 400
 (of the optic thalamus), 785
 Stria or striæ:
 acousticæ, 768, 787
 auditory, 768, 787
 longitudinal, lateral (stria longitudinalis lateralis), 780,
 793
 mesial (stria longitudinalis medialis),
 780, 793
 * malleolaris, 924
 medullares seu acousticæ (auditory striae), 768, 787
 medullaris thalami, 763, 782, 785, 794
 obiecta, 780, 793
 olfactory (intermedia, lateralis, medialis), 765, 775
 pineal, 763, 782, 785, 794, and App., notes 339 and 392
 terminalis, 767, 781, 782, 784, 785
 transversa, 780
 vascularis, 939
 Stroma of the iris (stroma iridis), 893, 896
 Subarachnoid reservoirs, see "Reservoir"
 Subcutaneous areolar tissue, 910, 950, 951, 953
 Subiculum cornu Ammonis, see "Gyrus hippocampal"
 Substance, cortical, of the cerebellum, 764, 772
 of the cerebrum, 785
 of hair, 952
 of the lens, 893, 900
 of the lens, 893, 900
 medullary, of hair, 952
 proper, of the cornea, 893
 reticulated white, of Arnold, 785
 Substantia corticals cerebelli, 764, 772
 cerebri, 785
 lentis, 893, 900
 pilis, 952
 † Substantia ferruginea, 772, 788
 gelatinosa centralis, 755
 of Rolando (substantia gelatinosa Rolandi), 754, 755, 786, 796, 787
 grisea centralis, 755
 lenticula, 893, 900
 medullaris pilis, 952
 nigra, 775, 788, 789, 791, 792
 perforata anterior, 795, 774, 775, 792, 793
 posterior, 795, 775, 799
 propria cornæ, 893
 membranæ tympani, 925
 reticularis alba, 786
 [Arnoldi], 785
 grisea, 786-788
 Subthalamic tegmental region, App., note 402
 Suleus or sulci (see also "Fissure," "Furrow," and "Groove"):
 ampullaris, 938
 anthelicis transversus, 920, 921
 auricula posterior, 920
 basilaris, 765, 787
 callosal, 777, 783, 785, 793
 of the cerebellum (sulci cerebelli), 770
 centralis [Rolandi], 776, 778
 cerebelli, 770
 cerebri, 775, 777, 778
 cinguli, 777
 circularis [Reili], 779, 780
 corporis callosi, 777, 783, 785, 793
 crucis helicis, 920, 921
 cutis, 950, 951
 frontal, inferior (sulcus frontalis inferior), 776
 superior (sulcus frontalis superior), 776, 778
 horizontalis cerebelli, 770-772
 hypothalamicus [Monroi], 764
 infrapalpebral (sulcus infrapalpebralis), 908 and App., note 490
 intermarginal (sulcus intermarginalis), 908 and App., note 490
 intermedialis anterior, 753
 posterior, 753, 755, 768
 interparietal (sulcus interparietalis), 776, 778
 lacrimalis, 912
 lateralis anterior (medullæ spinalis), 753, 755, 812
 posterior (medullæ spinalis), 753, 755, 768
 mesencephali, 766, 788, 789
 limitans insulae, 779, 780
 longitudinalis fossæ rhomboideæ, 768, 787
 matricis unguis, 956
 medianus posterior (medullæ spinalis), 752, 753,
 755
 of Monro, 764 and App., note 550
 nasal, posterior (sulcus nasalis posterior), 944, 946
 nervi oculomotorii, 764, 765
 occipital, anterior (sulcus occipitalis anterior), 776
 and App., note 388
 lateral (sulci occipitales laterales), 776 and App., note 388
 * superior (sulci occipitalis superiores), 776,
 778, and App., note 388
 transverse (sulcus occipitalis transversus),
 766 and App., note 388
 olfactory (sulcus olfactorius), 774, 775
 orbital (sulci orbitales), 775 and note
 orbitopalpebral, inferior (sulcus orbitopalpebralis)
 inferior, 903 and App., note 495
 superior (sulcus orbitopalpebralis)
 superior, 908 and App., note 496
 palpebral, inferior, 908 and App., note 496
 parolfactory, anterior (sulcus parolfactorius anterior),
 777
 posterior (sulcus parolfactorius posterior), 777
 postlimbic, 777
 precentral (sulcus praecentralis), 776, 778
 promontorii, 927, 930
 sclera, 892
 spiralis, 939
 subparietalis, 777

Sulcus or sulci:

temporal, first or superior (sulcus temporalis superior), 776 and note, 779
 fourth, see "Fissure, collateral"
 second or middle (sulcus temporalis medius), 776
 third or inferior (sulcus temporalis inferior), 755
 transverse (sulci temporales transversi), 779

triradiate, 775, note

tuba auditiva, 929

tympanic (sulcus tympanicus), 925, 933

Supercilium, 905

Suprachoroidal membrane, 893-895 and App., note 458

Suprameatal spine, 921, 923, 927

Suprapineal recess, 764 and App., note 363

Surface of the eyeball, inferior, 892, 902

nasal, 892

superior, 892, 902

temporal, 892

Suspensory ligament, see "Ligament, suspensory"

Sweat glands, 910, 950, 951, 953

Sylvian fissure, 762, 763, 774-776, 780, 793

Sylvius, aqueduct of, 761, 763, 764, 776, 789, 791

fissure of, 762, 763, 774-776, 780, 793

Sympathetic, great ganglionic cord of, 812, 816, 836, 837, 856,

874, 876, 878, 884, 888, 890

nervous system, 883-890

Synapse, App., note 321

Synovial sheath of the trochlea or pulley, 903, 904, and

App., note 454

System, nervous, central, 751-808

cerebrospinal, rudiment of, 858

general considerations, 745-750

peripheral, 809-882

sympathetic, 883-890

pedal, App., note 466

tegmental, 756 and App., note 405

Systema nervorum centrale, 751-808

periphericum, 809-882

sympathicum, 883-890

T.

Tænia or teniae (see App., note 392):

* choroidæ, 767, 782, 784, 785, and App., notes 370 and 392

* fimbriae, 784, 785, and App., note 365

* formicis, 784, 785, and App., note 392

of the fourth ventricle (taenia ventriculi quarti), 767,

768, 773, and App., note 392

hippocampi, 782, 783, 785, 791, 794, 795, and App.,

note 363

pontis, 766 and note

semicircularis, 767, 781, 782, 784, 785, and App.,

note 392

tecta, 780, 793, and App., note 392

telarum, 784 and App., note 362

thalami, 784, 785, and App., note 392

Tail of the caudate nucleus, 766, 785, 791, 794, 795

* of the corpus striatum, 767, 781, 782, 784, and footnote

to p. 766

Tapetum, 782, 791, 798

Tarini, fascia dentata of, 763, 782, 783, 785, 791, 795

fossa of, 764, 765, 774, 789-792

Tarsal membrane, 907, 909

superior, 903, 904, 907, 909-911

Tegmen ventriculi quarti, 766, 773

Tegmental region, subthalamic, App., note 402

system, 796 and App., note 405

tract, 796, 797, and App., note 405

Tegmentum, 775, 789

Tela chorioidea ventriculi quarti, 767, 773, 786

tertii, 764, 776, 784, 785, 789, 791, 802

choroidea inferior, 767, 773, 786

superior, 764, 776, 784, 785, 789, 791, 802

subcutanea, 910, 950, 951, 953

Telencephalon, 760-762

Tenon's capsule (or fascia of Tenon), 906, 907

space, 907

Tent, 803-805, 808, 860

of the fourth ventricle, 764, 772, and App., note 366

Tentorium cerebelli, 803-805, 808, 860

of the hypophysis, see "Diaphragm, pituitary"

Termination of nerve fibres, 748-750

Testes, see "Quadrigeminal body, inferior," and App.,

note 372

Thalamencephalon, 760-762

Thalamus, 760, 761, 763, 764, 767, 782, 785, 790-797

Threshold of the island of Reil, 775, 779

Tip of the nose, 942

Tissue, areolar, subcutaneous, 910, 951, 952

connective, episcleral, 892, 893, 895

epivaginal, 899

Tonsil (of the cerebellum), 770-773

Tonsilla cerebelli, 770-773

Torcular Herophili, 804, 808, 860

Torus tubarius, 919, 928, 946

Touch bodies, App., note 324

corpuscle, 749 and App., note 324

organ of, 949-956

Trabs cerebri, see "Corpus callosum"

Tract, ascending, anterolateral, 756 and App., note 346

of Burdach, 756 and App., note 348

central, of the auditory nerve, 796 and note

cerebellar, App., note 344

direct, App., note 344

lateral, 756, 757, 797, and App.,

note 344

dorsolateral ascending, App., note 344

of the fillet, 796 and App., note 405

of Goll, 756 and App., note 348

of Gowers, 756 and App., note 346

olfactory, 765, 766, 774, 775, 862

optic, 765, 766, 774, 789-793, 798

pyramidal, 799, 800

anterior, 756, 800

crossed, 756, 757, 786, 800

direct, 756, 800

lateral, 756, 757, 786, 800

spiral, perforate, 932, 935, and App., note 534

segmental, 796, 797, and App., note 405

of Türc, see "Tract, pyramidal, anterior"

Tractus olfactorius, 765, 766, 774, 775, 862

opticus, 765, 766, 774, 789-793, 798

solitarius, 769, 786, 787

spinalis nervi trigemini, 769, 786

spinalis foraminosus, 932, 935

foraminileatus, 932, 935, and App., note 534

Tragi, 920

Tragus, 920, 923, 928

plate, 921, 922

Trapezium, 787, 796

Triangle (see also "Trigonum").

auditory, 768, 787

of the fillet, 766, 788

olfactory, see "Trigonum olfactorium"

Trigeminus group, 858-871

Trigone, see "Triangle"

Trigonum (see also "Triangle"):

acustici, 768, 787

collaterale, 751, 782

habenule, 767, 782

hypoglossi, 768

lemnisci, 766, 768

nervi hypoglossi, 768

olfactorium, 765, 774, 775, 793, and App., note 368

ventriculi, 781, 782

Trochlea, synovial sheath of, 903, 904, and App., note 414

Tractus corporis callosi, 780, 783-785, 790, 794, 802, 805

umboscalaris, 836, 856, 885

sympathicus, 831, 836, 836, 837, 856, 874, 876, 878

884, 888, 890

pars cervicalis, 884

lumbalis, 885

sacralis, 885

thoracalis, 884

- Trunk ganglion of the vagus nerve, see "Ganglion of the trunk of the pneumogastric nerve"
 Tuba auditiva [Eustachii], 918, 919, 924, 926, 928, 929, 946
 pars cartilaginea, ossea, 926, 928
 Tube, Eustachian, 918, 919, 924, 926, 928, 929, 946
 pharyngeal orifice, 918, 919, 928
 tympanic orifice, 918, 919, 928
 Tuber cinereum, 765, 774, 776
 cochlear, 923, 927, 931, 933
 posticum, 770-772
 valvula, 770-772
 vermis, 770-772
 Tubercle, anterior, of the optic thalamus, 782
 auditory, 768
 cuneate, 753, 766, 768
 of Darwin, 920
 of the optic thalamus, anterior, 782
 posterior, of the optic thalamus, 766, 767, 769, 795
 of Rolando, 766, 768, 786
 †Tuberculum acustum, 768
 anterius thalami, 782
 auriculae [Darwini], 920
 cinereum, 766, 768, 786
 † cuneatum, 753, 766, 768
 laterale, 768
 supratrigicum, 920
 Tunic, darts, 951
 of the eyeball, choroid, see "Choroid"
 sclerotic, see "Sclerotic"
 Tunica dartos, 951
 fibrosa oculi, 892
 propria (corii), 950
 Ruysschiana, 895 and App., note 486
 vasculosus oculi, 894-896
 Turbinal, highest, see "Concha suprema of the nose" and App., note 557
 inferior, 903, 913, 914, 944, 945, and note⁵ on p. 944
 middle, 913, 914, 944, 945, 948, and note⁵ on p. 944
 superior, 913, 914, 944, 945, 948, and note⁵ on p. 944
 Turbinata body, see "Turbinal"
 bone, see note⁶ on p. 944
 Türk, tract of, see "Tract, pyramidal, anterior"
 Tympanic membrane, 918, 919, 922, 924-928, 932
 secondary, 926, 937, and App., note 523
 spine, anterior, 923, 924
 posterior, 923, 924
 Tympanum, 918, 919, 926-928
- U.**
- Umbo (membranæ tympani), 924, 925
 Uncinate fasciculus, 801 and App., note 406
 Uncus (gyri hippocampi), 763, 765, 775, 782
 Ungues, 956
 Utricle, 869, 936-938
 Utriculus, 869, 936-938
 Uvula (vermis), 770-773
- V.**
- Vagina nervi optici, 897, 899
 Vagus group, 872-882
 Vallecula of the cerebellum (vallecula cerebelli), 771
 Sylvii, see "Fossa cerebri lateralis (Sylvii)"
 Vallum unguis, 956
 Valve, Hasner's, 913
 of Vieussens, 760, 761, 764, 767, 771-773, 776, 788
 Vas prominens, 946
 † spirale, 940
 Vascular band of the canal of the cochlea, 939
 Vein or veins:
 of the aqueduct of the cochlea, 940 and App., note 551
 note 551
 vestibule, 940 and App., note 551
 note 551
 auditory, internal, 940 and App., note 551
 basal, 784
 basilar, 784
 central, of the retina, 897, 899
 Vein or vein:
 choroid, 894
 ciliary, anterior, 893, 895, 897
 posterior short, 897, 899
 conjunctival, anterior, 897
 posterior, 897
 of the corpus striatum, 784, 785, 792, 793
 emissary, 806
 condylar, 806
 mastoid, 804, 806, 807
 occipital, 806
 parietal, 806
 episcleral, 893, 897
 of Galen, 784, 789, 791
 great, 764, 784, 805
 of the modiolus, spiral, 940 and App., note 551
 ophthalmomeningeal, 804 and note, 805
 of the retina, central, 897, 899
 nasal, inferior, 898
 superior, 898
 temporal, inferior, 898
 superior, 898
 of the septum lucidum, 784, 793
 spinal, 754, 786
 spiral, of the modiolus, 940 and App., note 551
 vestibular, 940 and App., note 551
 vorticose, 894, 897
 Velum interpositum, 764, 776, 784, 785, 789, 791, 802
 medullary, anterior or superior (velum medullare anterius), 760, 761, 764, 767, 771-773,
 776, 788
 posterior or inferior (velum medullare posterior), 767, 771-773
- Vena *vel* vence:
 aqueductus vestibuli, 940
 auditiva internæ, 940
 basalis [Rosenthali], 784
 canalicularis cochlearis, 940
 centralis retinae, 897, 899
 cerebri magna [Galeni], 764, 784, 805
 interna, 784, 789, 791
 chorioidea, 784
 ciliares anteriores, 893, 895, 897
 posteriores breves, 895, 897, 899
 conjunctivales (anteriores, posteriores), 897
 episclerales, 893, 897
 ophthalmomeningeal, 804, 805
 septi pellucidi, 783, 793
 spinales, 754, 786
 spiralis modioli, 940
 terminalis, 784, 785, 792, 793
 vestibulares, 940
 vorticose, 894, 897
- Ventral portion of the pons Varolii, 787, 788
 Ventricile, fifth, 781
 fourth, 761-764, 766-768, 772, 773, 776, 786, 787, 798,
 802, 808
 lateral, 762, 763, 780, 781, 784, 791-795
 of the septum, 781
 * third, 763, 764, 776, 782, 785, 790-794, 802, 808
 Ventriculus lateralis, 762, 763, 780, 781, 784, 791-795
 quartus, 761, 763, 764, 766, 767, 772, 773, 776, 798,
 802, 808
 terminalis, 753, 754
 tertius, 763, 764, 776, 782, 785, 790-794, 802, 808
 Venulae retinae, 889
 Venule, macular, inferior, 898
 superior, 898
 Vermis, 764, 766
 † inferior, 770-772
 † superior, 770-773, 797
 Vertex cornæ, 892
 Vesicle, auditory or otic, 762, 858
 lens, 914, 915
 optic, primary, 762
 Vesicles, cerebral, 760, 762
 Vesicula ophthalmica, 762
 Vestibule of the labyrinth, 926, 930-932, 934, 935, 937
 of the nose, 913, 943, 944, 946, 947

Vestibulum labyrinthi, 926, 930-932, 934, 935, 937
 nasi, 913, 943, 944, 946, 947
 Vibrisse, 942
 Vicq d'Azyr's bundle, 783, 785, 792
 Vicq d'Azyr, line of, 785
 Vidian nerve, 859, 862, 863, 947
 Vieussens, valve of, 760, 761, 764, 767, 771-773, 776, 788
 Villi, arachnoidal, 779, 802
 Vinculum lingulae (cerebelli), 771
 Vision, organ of, 891-916
 Vitreous body, see "Body, vitreous"
 Vortex coccygeus, 955
 Vortices pilorum, 955

W.

Wall of the tympanum, inner, 923, 927
 outer, 924, 926, 927
 White matter of the cerebrum, 980, 990
 Whorl, coccygeal, 955

Worm, 764, 766
 lower, 770-772
 upper, 770-773, 797
 Wrisberg, ganglion of, 887 and App., note 471
 nerve of, 822, 830, 831
 portio intermedia of, 765, 769, 774, 869, 873

Y.

Yellow spot, 898

Z.

Zinn, zonule of, 892, 893, 901, and App., note 480
 Zona incerta, App., note 492
 Zone of the iris, ciliary, 896 and App., note 487
 Pupillary, 896 and App., note 487
 Zonule of Zinn, 892, 893, 901, and App., note 480
 Zonula ciliaris [Zinnii], 892, 893, 901
 *Zonular spaces, 893, 895, and App., note 480

THE END.

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